

JTLS

VERSION DESCRIPTION

DOCUMENT

July 2000



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Building 96
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Defense Information Systems Agency
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JOINT THEATER LEVEL SIMULATION
(JTLS 2.2B)

ABSTRACT

The Joint Theater Level Simulation (JTLS) system is an interactive, multi-sided wargaming system that models a joint coalition force air, land, and naval warfare environment. This *Version Description Document* (VDD) describes Version 2.2B of JTLS, and specifically addresses each significant change from the previous version. The VDD includes a list of all the documentation and the software that comprise JTLS Version 2.2B.

This release primarily includes a number of code modifications that are fixes to software problems reported by users. These are tracked as Software Trouble Reports (STRs).

JTLS 2.2B also includes code and data file changes associated with the implementation of approved Engineering Change Proposals (ECPs) that result in functional enhancements. Some of these ECPs were originally scheduled for this release. Others were originally scheduled for earlier releases and subsequently reprioritized. Still others were scheduled for release with later JTLS Versions and either were completed early or are still in the process of being implemented.

This publication is updated and revised for each version release of the JTLS model. Any corrections, additions, or constructive suggestions for improvement must include justification and be keyed to specific pages and paragraphs. They must be in MCR format and sent to:

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1.0 INTRODUCTION

1.1 SCOPE

This JTLS Version Description Document (VDD) describes Version 2.2B of the computer software configuration identified as the Joint Theater Level Simulation (JTLS). JTLS 2.2B is a complete release, and is the replacement for JTLS Version 2.2A. For details on the differences between each JTLS 2.2 release and the previous version of JTLS, refer to the appropriate Version Description Document for each prior release. Prior releases include the JTLS Version 2.2 complete release and the subsequent JTLS Version 2.2A maintenance release.

This release primarily includes a number of code modifications that are fixes to software problems reported by users. These are tracked as Software Trouble Reports (STRs).

JTLS 2.2B also includes code and data file changes associated with the implementation of approved Engineering Change Proposals (ECPs) that result in functional enhancements. Some of these ECPs were originally scheduled for this release. Others were originally scheduled for earlier releases and subsequently reprioritized. Still others were scheduled for release with later JTLS Versions and either were completed early or are still in the process of being implemented.

Some of the ECPs included in this release are significant changes to how JTLS functions. The reader is advised to read Chapter 2 carefully in order to understand the new functionalities.

1.2 INVENTORY OF MATERIALS

This section lists documents and software relevant to JTLS. JTLS documents can be obtained by contacting the Configuration Management Agent (CMA) at the address listed in the Abstract on page (ii) of this document. DoD Military Standards can be obtained through the appropriate military channels.

1.2.1 Obsolete/Outdated Documents

No documents became obsolete or outdated as of this release.

1.2.2 Unchanged Documents

The following JTLS Version 2.2 documents have not been changed for this release:

D-J-00001-C, *JTLS Configuration Management Plan* (Version 2.0)

D-J-00111-B, *GIAC Release Notes* (Release 1.8)

D-J-00134-C, *GIAC User's Manual* (Release 1.8)

D-J-00137-B, *GIAC Model Controller's Guide* (Release 1.8)

D-J-00138-B, *GIAC G Data System Technical Manual* (Release 1.8)

D-J-00141-B, *The JTLS Standard Database Description Document* (Version 2.1.3)

D-J-00142-A, *GIAC Overview* (Release 1.8). This document provides a brief introduction to the GIAC and the G Data System.

1.2.3 Updated Documents

The documents listed in this section have been updated for the JTLS Version 2.2B release.

D-J-00009-S, *The JTLS Executive Overview* (Version 2.2)

D-J-00010-S, *The JTLS Director's Guide* (Version 2.2)

D-J-00011-Y, *The JTLS Controller's Guide* (Version 2.2)

D-J-00012-U, *The JTLS Player's Guide* (Version 2.2)

D-J-00013-V, *The JTLS Analyst's Guide* (Version 2.2)

D-J-00033-AE, *The JTLS Installation Manual* (Version 2.2)

D-J-00034-W, *The JTLS Technical Coordinator's Guide* (Version 2.2)

D-J-00087-J, *Lanchester Coefficient Development Tool User's Guide* (Version 2.2)

D-J-00094-U, *The JTLS Data Requirements Manual* (Version 2.2)

D-J-00129-J, *The JTLS Air Tasking Order Generator (ATOG) User's Guide* (Version 2.2)

D-J-00130-H, *The Software Maintenance Manual* (Version 2.2)

D-J-00135-N, *The JTLS Interface Training Manual* (Version 2.2)

D-J-00139-J, *The JTLS Database Development System (DDS) User's Guide* (Version 2.2)

1.2.4 New Documents

D-J-00128-R, *The JTLS Version Description Document (VDD)* (Version 2.2B)

1.2.5 Released Software

The JTLS Version 2.2B may be delivered either on a magnetic tape or as a set of compressed tar files to be downloaded. Either includes the complete suite of software source code, software executable code, and command procedures appropriate to the delivery site. The following software elements are included in the release:

- a. Combat Events Program (CEP)
- b. Information Management Tool (IMT)
- c. Message Processor Program (MPP)
- d. Graphical Input Aggregate Control (GIAC)

- e. Scenario Initialization Program (SIP)
- f. Interface Configuration Program (ICP)
- g. Order Preprocessor Program (OPP)
- h. Reformat Spreadsheet Program (RSP)
- i. Database Development System (DDS)
- j. Terrain Modification Utility (TMU)
- k. Lanchester Development Tool (LDT)
- l. ATO Generator Program (ATOG)
- m. ATO Translator Program (ATOT)
- n. ATO Retrieval Program (ATORET)
- o. Convert Location Program (XCONVERT)
- p. High Level Architecture Interface Program (HIP)
- q. Count Critical Order Program (CCO)
- r. Scenario Modification Program (modify21)

Instructions for installing JTLS 2.2B are provided in *The JTLS Installation Manual*. It is not necessary to install any previous version of JTLS before installing JTLS 2.2B. No other upgrade beyond installation of the tape (or compressed tar files) is required. The software that is provided is a complete release that includes all files and code required to execute JTLS. (Database compatibility is discussed in Section 1.5, "DATABASE MODIFICATIONS," on page 5.)

Except for selected U.S. Government users, a JTLS delivery will no longer include source code. However, to assist users in rapidly analyzing and recovering from model problems during exercises, two PDF files containing some code listings for the CEP and the SIP are provided. Beginning with this release, the compressed tar file, called JTLS2.2B.src.tar.Z, will include files named "cep_src.pdf" and "sip_src.pdf". These files contain listings, with line numbers, of all the CEP and SIP Simscript code, respectively. However, neither ".pdf" file includes the preamble.

1.2.6 Released Databases

The release includes two sample unclassified databases:

SDBv22 is a large, seven-sided, completely notional, scenario database wherein the forces are deployed in a fictitious island landmass (and in the surrounding ocean). This example scenario is called Standard Database v22. It was developed and is maintained by the Joint Warfighting Center (JWFC).

BLANKv22 is the SDBv22 database with all force structure data removed. This database can be used as the starting point for building your own database.

1.3 INTERFACE COMPATIBILITY

JTLS Version 2.2B requires the following versions of support software:

- a. Operating system for the model (one of the following):

1. Solaris 2.6 with all Y2K patches for use on Sun/SPARC Workstations
- b. Operating system for workstations (one of the following):
 1. Solaris 2.6 with all Y2K patches for use on Sun/SPARC Workstations
 2. Solaris 2.6 for Pentium x86 Workstations
- c. SIMSCRIPT II.5 Version 2.0.2 (SIMSCRIPT to C) translator/compiler. SIMSCRIPT is required for recompiling JTLS code. Prior releases of JTLS used SIMSCRIPT 2.0. The change to SIMSCRIPT 2.0.2 is required to make JTLS Y2K compliant. Any users that can obtain source code and plan on re-compiling JTLS SIMSCRIPT code should contact CACI Inc. to obtain the new version of the SIMSCRIPT compiler.
- d. ANSI C Compiler SC3.0.1 or higher.
- e. Windows software, X11R5 server, Motif 1.2 Library, Motif Window Manager.
- f. Adobe AcrobatReader Version 4.0, is required to read the delivered JTLS documentation. The JTLS 2.2B tape (or tar file) includes the freeware version of AcrobatReader.
- g. The Database Development System (DDS) requires the use of an ORACLE database and the Developer/2000 runtime environment. Two versions of the DDS are delivered with JTLS 2.2B. One version has been developed using Developer/2000 version 1.6.1 and the second version has been developed using Developer/2000 version 2.1. The DDS developed using Developer/2000 version 1.6.1 has been tested on Oracle Server 8.0.5.2.1 (enterprise editions). The DDS developed using Developer 2000 version 2.1 has been tested on Oracle Server 8.0.5.2.1. For a new ORACLE Server procurement, ORACLE 8.0.6 should be the user's choice. With this release of JTLS, a new section has been added to *The JTLS Installation Manual* (INSTALLATION OF DEVELOPER/2000 VERSION 1.6.1, Section 3.6), describing installation procedures for Developer 2000.
- h. TCP/IP is required for inter-process communication between the GENIS data server and all user interface programs. The version of TCP/IP that comes with Solaris 2.6 is sufficient.

The above approved list of operating systems does not include Solaris 7; although, several organizations are currently running JTLS using Solaris 7 without any reported problems. The reason Solaris 7 is not on the approved list of operating systems is due to the Oracle restriction. The Oracle Developer/2000 have not been approved for use with Solaris 7. If you run Oracle under Solaris 7 and encounter any problems, you will not be within Oracle's approved Support Matrix and therefore will not be able to contact Oracle for technical support. We are confident that all JTLS software works fine under Solaris 7, but using Solaris 7 should be a site decision and should be based on management's desire to maintain the ability to contact Oracle for technical support.

In addition, you will note that JTLS has in the past been configured for use on Digital Equipment Corporations (DEC) Alpha systems running Ultrix version 4.0B. However, the DEC Alpha configuration is not delivered with JTLS Version 2.2A or subsequent versions (2.2B).

1.4 ADAPTATION DATA

The procedures for installing JTLS 2.2B depend on the hardware configuration at the installation site. All installation considerations are addressed in *The JTLS Installation Manual*.

1.5 DATABASE MODIFICATIONS

We are delivering a new version of Standard Database (SDB) with this release. The format of the data has not changed, but some improvements to the data held within SDB have been made. The name of this new database is sdbv22. The scenario called blankv22 contains all of the same engineering level data as sdbv22, but does not contain any order of battle information, such as units or targets. If you have not added any of your own engineering level data, such a new Aircraft Classes, Tactical Unit Prototypes or Ship Unit Prototypes, then to you can easily make use of this new data.

To use this new data, make a copy of blankv22 to a new scenario name and then move in your scenario's order of battle information. Specifically, your order of battle information is included in the following database files:

Description of Data	Datafile
Airbase Runway Data	blankv22.ab_rw
External Events	All blankv22.ee_*
Faction/Country Data	blankv22.fc
Force Side Relationship Data	blankv22.fs_fs
High Resolution Unit Data	blankv22.hru
IADS Network Data	All blankv22.il_*
Strategic Resupply Data	All blankv22.la*
National Boundary Data	All blankv22.nb*
Pipeline Data	All blankv22.pl*
Railroad Data	All blankv22.rr*
Supply Movement Asset Data	All blankv22.sma*

Table 1: Order of Battle Files

Description of Data	Datafile
Specific Target Data	All blankv22.tg_*
Target Network Data	blankv22.tn
Specific Unit Data	All blankv22.ut_*
Weather Front Data	blankv22.wf

Table 1: Order of Battle Files

The new Standard Database made improvements to the following data:

Data	Change
Air-to-Air Lethality Data	Added some AAL data sets
Aircraft Class Data	Some new aircraft classes were added
Air Defense Class Data	Some new classes were added and some classes were deleted
Area Kill Lethality Data	Added some AKL data sets
Aircraft Loads	More aircraft loads were added
Aircraft Shelter Data	More aircraft shelter types were added
Aircraft Target Category Data	Changed the names of target category data from generic names to names which mean what they represent
Caliber Data	Added more caliber types
Command Control Prototype Data	Altered the density of combat system data
Combat System Prototype	Added a new combat system prototype
High Resolution Prototype Data	Changed some HUP parameters and added some new HUPs
Intel Info Prototype Data	Changed some IIP data
Jammer Type Data	Added some new jammer types
Mobility Counter-Mobility Prototype Data	Changed some MCB minefields data
Maneuver Prototype	Change some mobility data

Table 2: Data Improvements

Data	Change
Point Kill Lethality Data	Added some new PKL data sets
Surface Air Lethality Data	Added some new SAL data sets
Small Boat Data	Added some new small boat definitions
Sustainment Logistics Prototype Data	Added an SLP
Survivability Prototype Data	Changed the packet size data for combat systems
Surface-to-Surface Missile (SSM) Type Data	Added new types of SSMs
Sensor Type Data	Added new types of sensors
Ship Unit Prototype Data	Added new Ship Classes
Target Type Group Data	Change the definition of some target type groups
Tactical Unit Prototype Data	Added some new TUPs
Targetable Weapon Data	Added some new targetable weapon data
Unit Conversion Table	Added some new conversion possibilities

Table 2: Data Improvements

1.6 INSTALLATION NOTES

1.6.1 Installation Instructions

The JTLS Installation Manual (included in the “documents” compressed tar file that is part of this JTLS release) contains instructions for installing a new version of JTLS.

1.6.2 GIAC Compatibility

The GIAC that is compatible with this release is GIAC Version 1.9.7. This GIAC version is provided as part of this JTLS release. It is contained in the compressed tar files named: GIAC.1.9.7.<platform_name>.tar.Z. GIAC source code is not available as part of the JTLS delivery.

1.6.3 Oracle Installation

As previously mentioned, this release of JTLS supports both Developer/2000 Version 1.6.1 and Developer/2000 2.1. The following combinations of Developer/2000 and the Oracle Server are approved for use with JTLS.

1. Oracle 8.0.5.2.1 or 8.0.6 and Developer/2000 Version 1.6.1 (with patch 11)
2. Oracle 8.0.5.2.1 or 8.0.6 and Developer/2000 Version 2.1 (with patch 6)

To accommodate these two different versions of the DDS several new environment variables were added to the .cshrc file. These new environment variables are:

1. JDEV2000_VERSION - this variable should be set to either 1.6.1 or 2.1.
2. ORACLE_DEV2000_HOME - this variable should be set to the home directory for Developer/2000. If you are running Developer/2000 Version 1.6.1 you can install the software in the Oracle Server home directory, although Oracle suggests that you place it in the Optimal File Architecture (OFA) compliant location. If you are running Developer/2000 Version 2.1, then you must install Developer/2000 in its own OFA compliant directory. It can not occupy the same home directory as the Oracle Server. In either case, the environment variable should be set to the directory in which Developer/2000 is installed. *The JTLS Installation Manual* discusses the OFA compliant directory structure in detail, in Section 3.6.4, The Developer/2000 Version 1.6.1 and/or Version 2.1 Client-Server Installation.
3. ORACLE_SQL_HOME - this variable should be set to the home directory used for the Oracle Server.
4. During the Oracle user creation process, the proper database privileges must be granted. Failing to do so will result in problems during the scenario loads. Please revisit the *JTLS Installation Manual* Section 3.6.5 for detailed information regarding tablespace and user creation.

The section of the .cshrc file used to set the Oracle related environment variables has changed significantly. We strongly suggest that you view the .cshrc file delivered with JTLS 2.2B and adjust your site specific .cshrc file accordingly.

The Oracle DBA needs to grant the “SELECT ANY TABLE” privilege to the JTLS scenario related Oracle user for the JTLS load database process to succeed. Otherwise, the load will fail. Please revisit the JTLS Installation Manual, Section 3.6.5 for the list of required privileges and examples.

There are several known bugs in the Developer/2000 Version 2.1. These are minor issues, but should be considered when making the decision of whether to upgrade to Developer/2000 Version 2.1. These bugs are:

1. When the DDS form windows are minimized (or iconized) the user's will see the default Developer/2000 icon (TkII) instead of the DDS icon. We expect that a future Developer release or a patch will fix this problem.
2. When the forms runtime executable is invoked, the Username, Password and the Database fields must be entered in the Logon window. Previously the user could skip the Database field. If this field is omitted when running the Developer/2000 Version 2.1, the reports and graphics will not work properly. The user should enter the

ORACLE_SID value into this field. In order to find out the value of ORACLE_SID, type “echo \$ORACLE_SID” at your command prompt. If you have questions, please see your Oracle DBA or system administrator.

3. A bug in Forms 4.5 (Developer/2000) is fixed by Oracle in Forms 5.0. This fix forces the Forms 5.0 designers to set the focus between the form windows programmatically. Related triggers and PL/SQL code were added to the forms to work under Developer/2000 version 2.1. When the pointer moves into a form window, this window will gain the focus and will be displayed in front of other open windows. Depending on your pointer’s (mouse) location on your desktop, you might see a flickering motion. If you encounter this situation, simply move your mouse. The user can also change the window settings in the Common Desktop Environment (CDE) to “Click In Window To Make Active” to solve this problem.
4. Previously the user was able to use the “return” or “tab” key to move along the fields of a record which was displayed on a stacked canvas (the forms which were using the horizontal scroll bar in the list window). In Developer/2000 version 2.1, the record field may lose the focus when the end of the window is reached. Use your pointer (mouse) and click in the field in which you want to be. It works fine in other types of forms.
5. Some problems were reported by Oracle Developer/2000 version 2.1 Reports users on the Metalink for printing (or saving) to a *.pdf file. If you encounter any problem when using DDS and reports, please try to run the related report individually. Please see *The DDS User’s Guide* for more information.
6. Oracle announced an Oracle Graphics bug (#676548) for Developer/2000 version 2.1. The users might receive an OG-00057 error when invoking Graphics applications. The only work around for this problem is to recompile the Graphics applications. This problem is related to the ORACLE_SID environment variable. Oracle continues to work to solve this problem. Please send an email to jtlsdev@jtls.nps.navy.mil if you encounter this specific problem.

1.6.4 Datafile Differences.

Some users maintain unique game data files (e.g., english.msg, mtf.msg, and orders.def) at their individual locations. These files may, for example, include portions of message text written in native languages. Accordingly, JTLS releases include three “difference” files that specify the differences from the previous release for these three data files. The three files that are available are:

1. 0english.diff -Differences in the english.msg file between 2.2A and 2.2B
2. 0mtf.diff -Differences in the mtf.msg file between 2.2A and 2.2B
3. 0orders.diff -Differences in the orders.def file between 2.2A and 2.2B

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2.0 ENGINEERING CHANGE PROPOSALS

2.1 INTRODUCTION

This JTLS Version 2.2B release is designed primarily to provide corrections of software errors noted by users and developers since the last release. These are the STRs listed in Chapter 3. However, some functional enhancements to the code delivered as JTLS Version 2.2A are included here. This chapter of *The JTLS Version Description Document* describes the major changes implemented in JTLS Version 2.2B.

2.2 ECPs IMPLEMENTED

2.2.1 M-J-91134 Use Date Loaded on SDS DB catalog screen

Problem: The Scenario Development System was the predecessor of the JTLS DDS. Its SDS database catalog screen had a field for the date the database was created. THis ECP noted that it would be more useful to show the date the database was last loaded.

Solution: The DDS main screen was modified to show the date the database was last loaded.

2.2.2 M-J-99286 Represent Airborne Laser Weapons

Problem: Users have expressed a desire to represent airborne laser weapons which are capable of firing at theater ballistic missiles and either killing them or significantly damaging them causing them to land short of their designated target.

Note: the original title of this ECP was: Airborne Missile Interceptor

Solution: This summary includes a simplified representation of a fairly advanced, highly classified new weapon system which is not yet operationally available. In order to maintain JTLS source code at the unclassified level, it was important for us to represent the significant capabilities of this new system without incorporating any of the classified aspects of the weapon's capabilities. The following is an unclassified summary of the laser weapon system.

The laser weapon is placed on an orbiting aircraft. When missile launch is detected, the weapon can be fired during a portion of the ballistic missile's boost phase. The laser may or may not hit the missile. If it does hit the missile, it may destroy the missile completely or it may result in a venting of the missile's fuel, causing it to reduce its required boost time. If the boost phase of the missile is reduced, the missile will fall short of its designated target. The shorter the missile's boost phase, the shorter the distance it will be able to travel.

Furthermore, the closer the laser is to the missile, the more likely the laser will destroy the missile because the laser beam will be more powerful and more concentrated.

In order to represent this capability, the following changes have been made to the model. These database changes were placed in the structure of a database of a previous version. The structure of the JTLS database did not change from JTLS 2.2A.

1. To properly model the concept that the Air-to-Air weapon's (p)K against the missile is greater the closer the weapon is fired to the missile, the database needed to be expanded. Before the change, the Air Kill Lethality Table held the (p)K representing the probability that Air-to-Air weapon I when fired from Aircraft Class K will kill an object of Aircraft Target Type L.
2. The array has been expanded to hold the (p)K at the minimum range of the weapon. The (p)K current held in the database will be used to represent the (p)K at the maximum firing range of the weapon. When determining the (p)K, the model will assume a linear relationship between range and (p)K. In other words, the model will obtain the true (p)K by interpolating between the minimum range (p)K and the maximum range (p)K.
3. The model was changed to allow any orbiting missions to fire at detected missiles. No new data was required for this capability, but model changes was required.
4. For the model to allow an orbiting mission to fire on a detected missile, the database developer should specify an ADA Target Class for the missile's Targetable Weapon. For the missile to be susceptible to interdiction by an Air-to-Air weapon, the (p)K table for the weapon should be changed to have a positive (p)K against the missile's specified ADA Target Class.
5. The model logic now determines if there are any orbiting missions covering the launch hex of the missile. Since missile speeds are fairly fast, we only consider orbiting missions when determining whether the mission can fire and interdict the missile. The reasoning behind this assumption is that a mission must be specifically monitoring for missile launch in order to attempt interdiction and this monitoring can only be done while the mission is on station.

Since JTLS does not compute the ballistic flight path for the missile, the model assumes that the boost phase of the missile will occur within the hex that the missile was launched. For every orbiting mission that is within range, the model considers whether it will engage the missile.

However, only one orbiting mission will be allowed to fire at a given missile launch, it should be the mission with the best probability of kill, assuming that ROEs allow it. We believe that this simplifying assumption is not limiting in nature. If users believe that this is a limitation, we can address the interactions when more than one mission fires on a given ballistic missile.

For every targetable weapon, a new data parameter, called TW BOOST PHASE TIME, was added. This represents the time the missile is susceptible to the laser weapon system. The use of this data parameter is explain below.

In addition, the Air Kill Lethality table was expanded to include a Probability of Hit (P_H). The previous table only contained the (p)K and the database developer needed to include the probability the weapon would hit as part of the entered (p)K. After this change, the database developer needs to alter the existing (p)K data and separate (p)K and P_H into separate data parameters.

The interdiction of a ballistic missile logic can be summarized as follows. This logic will be executed when a missile with a positive TW BOOST PHASE TIME launches and the best suitable mission (Step 2) is selected.

Missiles that are fired upon during boost phase by these weapons are either:

- a. missed, in which case they proceed on to their target, unless engaged by another weapons system;
- b. hit and killed, or;
- c. hit and damaged, in which case their impact locations changed due to the damage suffered.

Because of this change and the new data, the air-to-air combat assessment logic was also changed. These changes can be summarized as follows:

When an air-to-air combat assessment is calculated, the model uses the P_H to determine if there is a hit. If there is a hit, the model determines the distance between the attacker aircraft and the defender aircraft. The (p)K is calculated by interpolating between the Minimum Range (p)K and the Maximum Range (p)K based on the distance between the two aircraft when the interdiction takes place. The next random draw determines whether the air-to-air weapon killed the defender aircraft. If it did, the aircraft is removed from the mission following the same logic currently used in JTLS. If the random draw does not result in a kill, no damage is assessed against the aircraft which was hit.

The above design logic implies that JTLS now has a capability to distinguish between theater ballistic missiles and cruise missiles. If a missile does not have a TW BOOST PHASE TIME, then JTLS will assume that the missile is a cruise missile and it flies at an altitude equal to the TW ALTITUDE ZONE attribute. Because of this some other changes were considered.

A missile, represented as a cruise missile in JTLS, can be tracked by sensors as it moves from hex to hex and can therefore be displayed on the Common Operational Picture (COP). As it moves hex to hex it can be interdicted along its complete flight path by surface-to-air missile sites. This logic is in place in JTLS 2.2. The design team discussed allowing air-to-air weapons fire on cruise missiles as part of this design. The government's decision was not to implement this capability as part of this change.

This change does implement the following logic for a missile that is represented as a ballistic missile in JTLS. A ballistic missile can only be interdicted in its terminal hex by surface-to-air missile sites. In addition, if an air-to-air weapon on board an orbiting mission has a positive (p)K against such a missile, it can be interdicted in its launch hex, which represents the boost phase of the ballistic missile. Accordingly, JTLS will no longer model the hex by hex movement of a ballistic missile.

Finally, the following Scenario Verification Program changes have been made to accommodate the new data. WARNING 120 is generated if any of the following three parameters is zero and one or both of the other parameters is greater than zero: AAL AC ATC PROBABILITY OF HIT, AAL AC ATC PK, AAL AC ATC MAXIMUM RANGE PK.

2.2.3 M-J-99297 Track Names Should Be Real Names When Sharing Air Info

Problem: During recent database tests, players asked that Track Names for aircraft owned by sides sharing air information be identical to the real name of the mission. In previous releases of JTLS, a Side 1 GIAC showed the names of the missions assigned by the player for all Side 1 missions and assigned a unique track name for all other detected air missions.

Solution: If Side 2 is sharing air information with Side 1, then Side 2 tracks shown on the side 1 GIAC will be identified with the name given to the Side 2 mission by the Side 2 player. This will make coordination between Side 1 and Side 2 air players easier and more realistic.

2.2.4 M-J-2000108 Scenario Lock File

Problem: Redundant instances of the model running from the same scenario files lead to Combat Events Program (CEP) crashes.

Solution: The capability to block an attempt to start/re-start the CEP with a scenario which is already running on the system now exists.

The CEP now checks for the existence of a “lock file” to determine whether the model is running the same scenario on the network. If a lock file exists, the scenario is running, and the start/re-start attempt is aborted (stopped). A status report sent to the terminal on which the second CEP was started. Alternatively, in the absence of a lock file, the normal procedure for data initialization and start up proceeds.

The lock file contains the name of the host which is running the CEP which has the scenario locked. The lock file is located in the \$JGAME/<scenario name> directory and is named <scenario name>.lck.

When the CEP terminates by Controller action or a controlled crash that allows a checkpoint to be taken, the lock file is removed on the way out of the checkpoint routines. If the CEP process is terminated by the system or some other disaster that precludes an opportunity to take a checkpoint of the model status, then the lock file remains in the directory and must be manually removed before that scenario may be started again.

2.2.5 M-J-2000114 Add Warning Zero Probability Attain Firing Position

Problem: It was possible that an aircraft, when told to intercept an enemy and kill them, would refuse to do so. This situation occurred if the aircraft had a zero probability of attaining firing position. Since they could not obtain a firing position, they did not fire.

Solution: WARNING 120 was added to the SUP. If an air-to-air lethality kill table has a positive (p)K when aircraft A fires on aircraft target class B, The SUP checks that aircraft A has a positive probability of obtaining firing position against aircraft target class B. If not, the SUP issues WARNING 120.

2.2.6 M-J-2000115 Remove DEC Alpha Platform From Official JTLS Configuration Management

Problem: The DEC Alpha Platform is no longer a part of the JTLS Configuration Management Program. All related scripts and directories still existed in the current JTLS media and needed to be removed.

Solution: We removed all link references and the DEC Alpha directories called “Alpha”.

2.2.7 M-J-2000118 Heading For Fuel Altitude

Problem: When an air mission decides that it needs to go get fuel, it jumps to its most fuel efficient altitude and then proceeds to the best refuel location. The problem was that the aircraft's most fuel efficient altitude was not always a very safe altitude at which to fly because of enemy air defense.

Solution: When an air mission is heading for fuel, we added some logic to help it decide the altitude at which it should fly. The following logic has been implemented:

- a. Find the highest altitude, up to the most efficient fuel altitude, that is not covered by enemy air defense.
- b. Determine whether the mission flies at this altitude for one hex and then reverts to its most fuel efficient altitude, will it have enough fuel to make it to the refuel location.
- c. If the answer is YES, fly at the calculated safe altitude. If the answer is NO, fly at the most fuel efficient altitude.

The next time the mission moves, it will follow the same logic again. This means that the mission will opt to stay at a safe, less than efficient, fuel altitude as long as possible. When it can't do so any longer, it will fly at its unsafe altitude but optimal fuel efficient altitude and take its chances with the enemy air defense sites in the area.

2.2.8 M-J-2000142 IMT Quick Button For HRU Owned Targets

Problem: During Exercise LS00, the players expressed an interest in having an IMT quick retrieval button to display owned HRU targets. The button would be displayed on the HRU screen, and when pressed, would retrieve all targets owned by the selected HRUs.

Solution: The quick button was added to the IMT data file that describes the layout and capabilities of the screens.

2.2.9 M-J-2000147 Automatically Create Directed Search Areas From A File

Problem: During Exercise Lucky Sentinel, the intel staff submitted over 400 Directed Search Areas (DSA) daily for input to the model. It became apparent that this would need to be done automatically if the task was to be accomplished during normal game play.

Solution: The ATO-Translator was changed to provide the user with a choice of translating an ATO or translating a DSA spreadsheet. If the DSA spreadsheet option is selected, the user is queried for the type of DSA and the radius of the DSA. Multiple files can be read and the program created unique DSA names for each DSA and then outputs two data files. The first data file is the order file which creates the DSAs and the second data file is the order file which deletes the DSAs. The second file is intended to be used the day after the DSA create file is entered.

2.2.10 M-J-2000148 ATO-T Close Air Support (CAS) Allowed Flag

Problem: During Exercise Lucky Sentinel, an ATO had B-52s flying CAS missions. This mission type is interpreted by the ATO-T to be an Orbiting OAS mission and these missions are sent by the ATO-T with a CAS Allowed Flag set to YES. The B-52s flew and during the course of their on station time were sent on a CAS mission. This is unrealistic.

Solution: The ATO-T was improved. The file, constants.ato, which describes how to translate the ATO mission types into JTLS mission orders was expanded. All mission types which translate into a JTLS Orbiting OAS mission now specify whether the CAS allowed flag should be set to YES or NO. The XINT mission was specified as a CAS Allowed of NO type mission.

2.2.11 M-J-2000151 Additional Information In Logic Error Print

Problem: When the model encounters a situation that was not expected by the programmer, the model outputs a logic error warning. This warning has a traceback of the program stack and the value held for each local variable. During testing it became apparent that the programmer needed some additional information to help locate the problem.

Solution: The scenario name, the game time in decimal days and text date time group format were added to the logic error output file.

2.2.12 M-J-2000153 ATO-T Target Mis-Located Error Message

Problem: During Exercise Lucky Sentinel an F-15 was shot down while escorting an attack mission flying to a target deep behind enemy lines. The target had been placed at the wrong location in the database. The Air Tasking Order - Translator checks whether the location specified for a target in the ATOCONF message matches the JTLS database. If the two locations are not in the same hex, a WARNING is printed out. This warning was printed out but over-looked during the translation process.

Solution: The old warning message printed out the two locations. This made it hard to determine that there was a problem. The warning message now also prints out the distance between the two locations. The distance measure should make it easier to determine if there is a serious problem or not.

2.2.13 M-J-2000163 Add People Recovered During Period To Disease Report

Problem: When using the disease/failure module of JTLS, you can get a Disease Report that contains the number of new cases in the period, the number of deaths from the disease during the period, and the number that currently have the disease. Although algebraically feasible, it is hard to determine the number of recoveries from the disease during the period. To do this mathematically, you would need access to the last report. The desire was to have the model list the number of recoveries as part of the disease report.

Solution: The number of recoveries is now listed as part of the Disease Report. While implementing and testing this improvement, several existing errors were found and fixed:

- a. When the Controller ordered a change to the number of deaths from the disease during the last period, the model incorrectly changed the value to either the Controller specified number of currently inflicted, or a negative 1 if the Controller had not asked to change the number of currently inflicted.
- b. The method used to distribute the current inflicted between units when they split had an algebraic error. The error was fixed and the equation used to accomplish the split was well documented in the source code file.
- c. Some portions of the Disease Report would not properly print out some values.
- d. A Controller could not send an order changing just the Number deaths since the last period.
- e. Although the HRU TASK Order said you could tell HRUs to report diseases when in Coalition Support, this was not a capability of the model. The order was changed. If you want an HRU to report diseases, you should send them on a Civil Military Affairs task.

2.2.14 M-J-2000193 Automatic Supply Calculation

Problem: Generating realistic Basic Load, Stockage Object, and Reorder level information is a tedious job when building JTLS databases. This ECP provided for the development of a tool that would automate this procedure and fill this data in for all Tactical Unit Prototypes (TUPs) and Ship Unit Prototypes (SUPs). The tool would use input data based generally on the combat systems assigned to the units and an input value equivalent to the number of days of consumable supplies that the user wanted to be available at each unit.

Solution: The tool that was developed is called the Automatic Supply Computation (ASC) tool. The ECP was funded by the NATO Consultation, Command, and Control Agency (NC3A) so their desired algorithm took priority in its design. At the same time, however, we reviewed the logic

desired by the database developers at the Joint Warfare Center (JWFC). The desire was to make the ASC tool easy to use, but at the same time as flexible as possible, allowing the two different methods to be accommodated.

Refer to the published Automatic Supply Computation tool design document for a detailed description of the algorithms, for other implementation specifics, and for examples of how to use the tool. Only a very brief summary of the functionality and usage is included here.

The basic plan was to add to the existing Alter Database capability of the Scenario Initialization Program (SIP). The user activates the tool by selecting Option 3, Alter Database Tool, from the JTLS Database Preparation Menu. This menu is accessed by selecting Option 1 from the JTLS Main Menu. The program first reads in the selected scenario database and then walks the user through a series of questions, asking what type of alter database functions should be executed. After the procedure is completed, the program writes out the properly formatted JTLS database files which have been changed. The user can then manually move these changed database files into the proper scenario directory structure and re-load the Oracle Database Development System (DDS) tables.

An eventual goal of this project is to completely integrate this tool into the Database Development System (DDS). This will make the ASC tool easier to use by all JTLS customers because the procedure won't rely on moving in newly generated data files and reloading data into the database. There was not enough funding or time to accomplish this totally under the current contract, but several steps toward this capability have been taken under this ECP. As of this JTLS release, the following has been implemented:

The Alter Data capability of the DDS has been modified to allow the user to build and view the ASC specific data. When the user chooses the Automatic Supply Calculation selection under the "alter Database" DDS Main Menu option, the program creates the needed ASC tables in the Oracle tablespace and opens a window allowing access to several forms on which the ASC data are displayed. The DDS forms that can be accessed are:

- Daily Combat Data
- Round Per Tube/Launcher Per Day Data
- Replacement Combat System TUP Data
- Replacement Combat System SUP Data
- Required Days Of Supply Data.

Each of these forms allows the user to:

- Fill the table with default values for all required data
- Load the table with previously downloaded data from the scenario's alter data directory
- Change individual data items

- Save the changes within Oracle
- Download the changes to the scenario's alter data directory
- Exit, closing all the ASC forms and removing the tables from the relational database

The ASCII files that are written into the scenario's alter data directory (the Download option) are then used by the ASC program when it is started from the JTLS Database Preparation Menu.

The algorithms that are used within the ASC depend on a consistent use of Unit Prototype (SUP or TUP) data that a unit accesses. If the algorithms find inconsistencies, the ASC tool warns the user, but continues with the computations. As an example of the type of inconsistencies that are checked by the ASC, consider the following:

Suppose two units access the same TUP, but one has no other units to support while the other has several units to support. This is an inconsistency in terms of computing supply level data to be defined for the TUP. One unit accessing the TUP needs more than the other because it has units to support. In this case, the tool uses the higher level of support requirement in the computation. This means that the unit with no other units to support will have more supplies than it needs if it accesses the TUP.

This ECP requires no changes to the JTLS initialization data, but there will be a several new data files, those written by the DDS to the scenario's alter data directory. These data files contain the information that specifies how the consumable supplies values should be calculated. The ASC operates in the same manner as any Joint Theater Level Simulation tool in that there are no hard coded data in the SIP. It uses only data that the user must specify.

3.0 SOFTWARE TROUBLE REPORTS

3.1 INTRODUCTION

This chapter of the *JTLS Version Description Document* for JTLS Version 2.2B describes, in Section 3.2, the software error corrections implemented in the release.

3.2 STRs COMPLETED

The following STRs have been corrected with this release.

3.2.1 M-J-96013 Scheduled Minefields Are Emplaced Immediately

Problem: An order was sent from a Controller GIAC to create a minefield. The order included an emplacement time of 3 days into future. It was emplaced immediately, and did not show on the scheduled events list.

Solution: This STR was tested to determine whether or not it was still outstanding. The described condition does not exist at present. Controller minefield creations happen at the times specified on the order. The fix certainly was a by-product of other JTLS modifications.

3.2.2 M-J-2000107 Error In Format Of Message 1607

Problem: In the message data files, the format of the MPP message that displays Controller changes to the Intel Information Prototype (IIP) detection multipliers and rate attributes had a minor error. It only allowed two digits for the number of target subcategories. Some databases have over 100 subcategories of some types of targets.

Solution: The format error was corrected.

In addition, several changes were made to the report to make it more user friendly. If the message is generated as a result of a Controller change to the IIP Detection Multipliers, then only the changed multipliers are reported. If the message is generated because the Controller asked to see all detection multiplier data, a single table with the deployed and non-deployed detections multipliers is printed. In previous versions, two tables were printed, one with the deployed detection multipliers and one with the non-deployed detection multipliers.

3.2.3 M-J-2000109 Error In Set/Show IIP Detection Multiplier

Problem: The routine that processes a SHOW IIP DETECT MULTIPLIERS or a SET IIP DET MULTIPLIERS order had an error. The "SOF" field alternative was requiring the Unit Type for two units. One unit type represented the unit that was seeking the SOF unit and the other type was for the unit that was hiding (covert). This other type (the hider) is no longer needed since SOF units are now

represented by a single unit type (HRUs). While making this change it was noticed that the readability of the IIP Target Multiplier Report needed to be improved.

Solution: We changed both the set and show orders not to require the entry of the other unit type (hider) and reformatted the target report so only one table is reported by subcategory for each target category. This single table lists both the Non-Mobile and Mobile detection multipliers assigned to the target category by subcategory name.

3.2.4 M-J-2000116 Crash When Patrol Mission Flew Over Land Hex

Problem: A Patrol Mission was launched to an area that contained a number of land hexes. The Model crashed when the mission flew over one of them and tried to search it with its Sonar sensors.

Solution: The Patrol mission flew over a land hex that had a hex elevation that was numerically greater than the depth of the deepest water depth zone. This resulted in a subscript out of range crash when the model tried to find the depth zone for the mission's sonar sensor to use.

The model was changed so that a Patrol mission now does not even attempt to use its sonar sensors over land hexes, even if those land hexes contain rivers on which ships might be located.

3.2.5 M-J-2000117 Incorrect Cruise Missile Speed On GIAC

Problem: The GIAC Cruise Missile Sitrep showed an incorrect speed for the Cruise Missile.

Solution: Cruise Missile Speed is held in Kilometer Per Hour in GDS, but the GIAC Situation Report assumed it was held in Kilometers Per Day. The GIAC was changed to convert the GDS parameter properly for display.

3.2.6 M-J-2000119 Minesweeping Formations Don't Move

Problem: Minesweeping formations no longer moved along their path to continue a sweeping operation. The formation got stuck sweeping the same location over and over again.

Solution: There was an error in the code which moves the formation's new optimal routine into the formations actual route description. This caused the formation to continually move through the same hex again and again.

This same logic error also caused formations and air missions to unnecessarily re-enter route turn point hexes. This problem was also solved.

3.2.7 M-J-2000120 Remove Temporary DTM HRU Postures

Problem: Temporary Define To Means (DTM) postures eleven through twenty eight (11-28) existed in both the CEP and SIP initialization routines. These needed to be removed. Also, the OPM needed to be changed to print the new HRU postures eleven to twenty eight (11-28).

Solution: We changed the appropriate initialization and print routines to remove the temporary postures 11 through 28 from the CEP, SIP and OPM. The OPM was changed to print the new HRU postures.

3.2.8 M-J-2000122 Error In Set/Show Ship Unit Prototype G5 Message

Problem: The routine that processes a SHOW SHIP UNIT PROTOTYPE G5 or a SET SHIP UNIT PROTOTYPE G5 order had an error. The "Minefield Type" fields are optional, which is OK in either order. The problem was that if one chose not to select a minefield type, an MPP message error was generated.

Solution: The problem was that an "End of Message" character was only placed on the message data stream if a Minefield Type was selected on the order. The code was changed to place the ending character on the message stream in all cases.

3.2.9 M-J-2000125 Moving Land Units Cross Impassable Barriers

Problem: During Exercise Disciplined Warrior, it was noted that some units, towards the end of the exercise, were reporting that they could not move. It was discovered that under some conditions a unit could get across an impassable barrier and into an area completely surrounded by impassable barriers. Once in there, the only way to get out is a Magic Move.

Solution: A recent change in the ground movement code permitted a situation to arise where the unit would arrive precisely at a hex vertex due to an hourly move. This was caused by an error in the assumption about how far the unit had been able to move. In some cases, on the next move, the limited precision of the computer and the hex representation caused the unit to drift over the barrier leading away from the vertex it was occupying. As long as that edge was not a barrier the unit could not cross, no obvious problem occurred. When units were given move orders through a maze of tricky little passages, all different, the unit occasionally strayed over the barrier and got trapped. The error was corrected. If the unit correctly arrives at the exact vertex, it is now credited with an extra ten meters of movement to preclude a serendipitous recurrence. Additionally, a Logic Error call was placed in another routine. which could have noted the error earlier.

3.2.10 M-J-2000126 Model Crash Getting Preferred Transport Mode

Problem: The CEP crashed in routine GET PREFERRED TRANSPORT MODE, while trying to find the best mode for a unit that was beyond the maximum allowed distance for any automatic mode.

Solution: The problem was that an array was accessed even though it had not been reserved. It had not been reserved because the check for maximum distance is done very early in the routine, and if all modes fail, the routine exits. The error was fixed by not performing the terminal checks on the mode unless the array has been reserved.

3.2.11 M-J-2000127 Redundant Near Miss Report

Problem: Single Player MPP's were receiving both a damage report from a damaged unit, and a near miss report from other units in the same hex. A single MPP is supposed to receive either a damage report or a near miss report, not both.

Solution: The error was traced to a failure to set a flag on the MPP entity indicating that it had already received one report. The error was corrected.

3.2.12 M-J-2000128 Some Casualties Omitted From ASSESS COMBAT BDA Report

Problem: All casualties caused by Air were omitted from the BDA Report generated at the end of each Assess Combat period.

Solution: There was an error in the routine that produces the individual damage report lines for Air that explicitly omitted ASSESS COMBAT Reports from the print, but did print the name of the Aircraft. This error was corrected.

3.2.13 M-J-2000129 Unnecessary Setting Of Local Variable

Problem: Routine GROUND TIME TO NEXT HEX set the variable MINEFIELD POSTURE, but never used it. This routine is called a lot, and efficiency is important.

Solution: The setting of the variable was removed and efficiency improved.

3.2.14 M-J-2000130 Error In Reporting Weather Front Parameters

Problem: The report of the parameters of a weather front did not allow for the possibility that one of the probabilities might be 1.0. This caused an error in the message print.

Solution: The format of the printed variable was changed.

3.2.15 M-J-2000131 Misleading Force Self Lift Message

Problem: When a helicopter squadron conducted a forced self-lift due to the fact that its FARP had been TPFDDed out of the game, the message to the Player stated that it was lifting itself because it was "under direct fire".

Solution: The message data files were modified to add new submessages to indicate that such a squadron was moving (or trying to) because its FARP was not longer there. Also, the code was changed to generate the new submessages at the appropriate times.

3.2.16 M-J-2000132 Units TPFDDed Out Lose Higher Headquarters

Problem: When a unit was TPFDDed out of the game, its higher headquarters was set to none. This meant that when and if it was TPFDDed back in, it came in as the highest headquarters on its side. This resulted in there being more than one highest HQ unit on the side.

Solution: An error in the code was found and fixed. Essentially, a flawed IF statement removed the HHQ for units that were TPFDDed out, and retained the HHQ for destroyed unit - the reverse of how it should have been done.

3.2.17 M-J-2000133 Erroneous Report From Overloaded Unit

Problem: When a unit receives more supplies that it can store or carry, it reports the fact to its Logistics Player. The message said that the overload was the result of a Directed Resupply, no matter how the shipment was delivered. This confused the Players, because usually no Directed Resupply Order had been sent.

Solution: The structure was changed so that if the delivery is by convoy, the message reports that the overload was the result of a Push, a Directed Resupply, or just from a convoy. This should help the Player isolate the problem if there is one.

3.2.18 M-J-2000134 Jammer Target Created With HRU Not Initialized.

Problem: During testing at exercise Lucky Sentinel 2000, it was noted that HRU-owned broadcast jammers did not have the desired effect. This was traced to a failure to initialize the HEX EFFECTS POINTERS used to track the effects of the emitter in the affected hexes.

Solution: The error was traced to the activation routine, which did not call the routine to file a radiating target in a hex. The omission was corrected, and the routine improved for quality.

3.2.19 M-J-2000135 Reorientation Option On DEFEND Order Not Working

Problem: The option on the Defend Order that directs a unit to change its orientation without changing position did not work.

Solution: The problem was that the code was checking whether integer word 2 on the order was set as an indicator. That flag is no longer set. The error was corrected by changing the order so that its attributes are initialized to the ORDER INITIALIZATION VALUE, and changing the code so that if the appropriate attribute was not equal to the ORDER INITIALIZATION VALUE, change the unit orientation.

3.2.20 M-J-2000136 GIAC Depth Zone Colors Not Set By ICPLLogin

Problem: When the player selects a scenario from the ICPLLogin scenario selection dialog, the ICPLLogin reads that scenario's depth zone data. When a GIAC is started, the depth zone data is used to specify the different hex colors in the GIAC configuration file for the depths. This works fine. However, there are two ways that the player can have an ICP login active without selecting a scenario from the scenario selection dialog: 1) there is only one active and therefore allowed scenario; 2) the ICPLLogin is started on the command line with a scenario specified. In both of these cases, the depth zone data for the scenario is not read. The result was that the GIAC configuration file was written with all ocean hexes in the same color.

Solution: The code was modified so that all methods of selecting a scenario will result in that scenario's depth zone data being read.

3.2.21 M-J-2000137 Multiple Filter Windows Causing IMT To Crash

Problem: An IMT scroll screen allows the user to display multiple windows for the same filter option. However, the code only keeps track of a single window. When the player started closing the filter windows, a crash resulted.

Solution: The code for the scroll screens was changed to check if a filter select dialog is already open. If one is, then a new dialog is not created, and the existing dialog is moved to the top of the display. While fixing this error, it was noted that filter select dialog may be popped up off the usable screen, in which case the user had no control over them, and could not access them to close them. This error was also fixed.

3.2.22 M-J-2000138 Targets Owned By HRUs Did Not Print Proper Owner

Problem: When Online Player Manual's (OPMs) were re-generated from an ASCII checkpoint, targets owned by HRUs did not properly show the true owner of the target.

Solution: A target's owning HRU is located in the TARGET ASCII file which was not being read by the SIP. The data is now read by the SIP and the correct target owner is printed in the OPM.

3.2.23 M-J-2000139 Target O_Suffix Fields Must Be Modified In DDS Forms

Problem: The target forms did not allow the DDS user to enter a five digit number (between 10000 and 99999) in the o_suffix field. The related item triggers and the labels on the related forms had to be modified.

Solution: The WHEN_VALIDATE_ITEM triggers in the list and detail blocks of the DDS target forms were modified to allow the entry of 5 digit category codes. The labels for the o_suffix field in the related forms were modified to "Category Code". This field will now be used to hold the target category codes.

3.2.24 M-J-2000140 Inappropriate Penalization Of Moving Units

Problem: During Exercise LS00, it was noted that many units in very light contact were moving very slowly. Investigation revealed that the units were incorrectly being assumed to be newly entering combat, because, while they were in combat, their current strength was at least as large as their strength at the last ASSESS COMBAT. This resulted in the units not being permitted to move until the next assess combat. The units had actually been in heavy combat for some time, and were recovering strength. The penalty was inappropriate and needed changing.

Solution: An argument was added to the routine that schedules all ground move events, indicating whether the unit had been under direct fire prior to the requirement for the move. The unit is now forced to wait if and only if it was not previously under direct fire, and is now under direct fire.

If a unit is under indirect fire only, a penalty is added in the move time computations. The comparison between old and new unit strengths was removed as a criterion. In addition, a small change was made to another routine to correctly note whether a unit just coming into Lanchestrian combat is under direct fire or not.

3.2.25 M-J-2000141 PSYOP Broadcast Jammers Not Being Turned On

Problem: During Exercise LS00, it was discovered that the code to turn on PSYOP Broadcast jammers was not working correctly. As a result, BROADCAST JAMMERS were having no effect in the game.

Solution: The error was corrected.

3.2.26 M-J-2000144 Problem Reporting Attack Mission's Next Destination

Problem: When an air-ground attack mission drops its weapons, it adds a message to its final mission report. There are two choices, target destroyed heading to next target and target destroyed heading home. The model could not determine which statement to print. It defaulted to heading home.

Solution: The logic was improved so the model can determine and report the proper situation.

3.2.27 M-J-2000145 Problem Executing Engineering Order In Same Hex

Problem: When an engineering order is sent for a unit to perform an operation in its current hex, the model reported that there was no feasible route to the operation area.

Solution: The problem specifying the route so the unit could move close enough to the task area within the same hex was corrected.

3.2.28 M-J-2000146 Squadron ROEs Not Getting To Missions

Problem: Players entered a change Rules Of Engagement Order for a squadron and not all of the squadron's missions received notification of the change to ROE.

Solution: There were two problems. First, if a mission is in a posture of schedule, pre-launch, or delay, the mission is not in the squadron's active mission list. This list was used to pass the ROE's to the squadron's missions. The list of all missions is now used, not just the squadron's active mission list. Second, the unknown or non-owned target ROEs were not being passed to the squadron's missions. The squadron's side related ROEs were passed, but not the unknown ROE. This problem was also fixed.

3.2.29 M-J-2000149 HLA Fire Missile Crash

Problem: The model crashed in the Fire Event if the fire mission was determined to be infeasible. The feasibility checks are done just prior to scheduling the fire event, but it is possible that the situation changes between the time the event is scheduled and the actual fire can take place.

Solution: The new High Level Architecture code did not account for this possible situation. The new code added for the HLA implementation was corrected.

3.2.30 M-J-2000150 Abandoned Jammer Still Displayed On Graphics

Problem: When targets owned by HRUs were removed from the game because the owning HRU was killed, the target's arrays were not adjusted properly. If you restarted a game when a target was in this situation, it was incorrectly displayed on graphics.

Solution: When the target is removed from the game, the target's detected arrays are properly set to insure they are not displayed on a restart.

3.2.31 M-J-2000152 Error In Cancel Ship Leave Message

Problem: When the user submits an order for a ship that will require the ship to leave its current formation, the model checks if the ship will be allowed to leave or whether it is needed to conduct the current formation operation. If the ship can not leave its formation, an error message is generated and sent to the player that submitted the order. This message had a format error.

Solution: The message error was corrected.

3.2.32 M-J-2000154 Error In Mine Laying Message

Problem: During Lucky Sentinel a player told unit to lay 500 mines. The unit came back and said cannot lay 482 mines, I only have 482 mines.

Solution: There was an error in the routine that processes a mining order. The amount available was reported in place of the ordered amount on the “Cannot Comply” Message. The error was corrected.

3.2.33 M-J-2000155 Error In Controller Change Unit Strength

Problem: The Controller Change Unit Order generates a “Cannot Comply” message back to the Controller MPP when the directed strength increase is beyond what the CEP considers feasible for the unit. However, the CEP also increases the unit strength to its optimum and informs the Controller. The problem was that the CEP did not also inform the affected unit’s reporting Player of the change.

Solution: The Controller Change Unit Order was modified so that now when this condition is met and the Controller is sent a message, the affected unit’s reporting MPP is also sent the message.

3.2.34 M-J-2000156 Reactivated Unit Becomes Its Own HQ

Problem: If the force side commander is wiped out, the distinction of being force side commander is passed to a surviving unit. If all units on a side are wiped out, the last unit to be wiped out will be the force side commander. The problem was that if this last unit was reactivated, it filed itself in its own subordinate set. This caused a circular loop on orders that examine the set, and could result in a crash from an excessive stack when some orders were sent. Additionally, if all the units were wiped out, and a unit that was not the last to be wiped out was reactivated, that unit would be filed in the subordinate set of the force side commander. Thus, even with units back in the game, the force side commander could be a unit that was wiped out.

Solution: Two checks are now made when a unit is being reactivated. If the force side commander is wiped out, the reactivating unit becomes the force side commander. Secondly, before filing the reactivated unit in the force side commander’s subordinate set, we first check if the reactivated unit is the force side commander, and if so, the filing is skipped.

3.2.35 M-J-2000158 Target Coverage Indicators Not Being Picked Up

Problem: While testing an ECP, it was discovered that when removing a radiating (sensor, jammer, SAM/AAA) target from the game, the code would file the coverage of the target in the surrounding hexes. This should already be done for any target on the playing surface, and the code should have been picking up the coverage indicators instead of putting them down. Additionally, it was discovered that a target that was being assigned a new associated unit would verify that the new unit was out of the game, when in fact it should have been checking to ensure the unit was in the game.

Solution: The code was changed to pick up the coverage indicators of the radiating target, and to ensure that a new associated target is in the game, vice out of it.

3.2.36 M-J-2000159 Duplicate Menu Item On Controller Menu

Problem: It is allowed and appropriate for an order to be accessed from more than one location in a GIAC orders menu structure. However, the same order should not be accessed twice from the same menu. The “Controller Change Target” option existed two times on the “Ops/Intel” - “Controller Damage and Repair” menu for Controller GIACs.

Solution: The data file that determines where orders appear on the Controller GIAC’s orders menu structure was corrected so that the specified option only exists once on the indicated menu.

3.2.37 M-J-2000160 PLAYERS IN GAME Order Panel Does Not Appear

Problem: On a Player’s GIAC Station, the user has a menu item labeled “Players In Game”. When this item is selected, nothing happened. No order panel was displayed.

Solution: A few months ago, we implemented an improvement to reduce the GIAC memory requirements. Each GIAC now creates order panels for only those orders it can access. The PLAYER IN GAME Order was incorrectly labeled as a “Controller Only” Order; therefore, the information to create the order panel was not available to the Player GIACs.

The PLAYER IN GAME Order was correctly labeled as a “Controller and Player” Order. The Order panel now appears when the “Players In Game” menu item is selected. A check of all menu items was conducted to insure no other errors were inadvertently entered as part of this improvement.

3.2.38 M-J-2000161 Squadron Arrival Does Not Change Airbase Aircraft TO&E

Problem: When a Squadron arrived in theater, it did not update the Table of Organization and Equipment (TO&E) value for its new home base. The IMT showed the wrong aircraft TO&E value.

Solution: A squadron’s home Airbase TO&E or Carrier TO&E is now updated every time a squadron arrives in theater.

3.2.39 M-J-2000162 Pipeline Support Units Do Not Move To Source Nodes

Problem: If a pipeline has an operating unit (Pipeline Support Unit) specified in the database, that unit should, on arrival in the game, automatically move to the location of the source node, if it didn’t actually arrive there. The unit must be in the hex containing the source node in order to operate the pipeline. Such units were not moving to the source node hex on arrival.

Solution: The problem was that a change was made several months ago that added a flag to the Assign Pipeline Operations Order to indicate whether the unit was allowed to move to take control of the pipeline. This change was not reflected in the code which automatically submits the order for a unit specified in the initialization database.

The code was modified so that “movement allowed” flag is set to YES for a unit that arrives in the game and is designated as the support unit for a pipeline. However, if the unit is an AIRBASE or a SQUADRON, the flag is set to NO. Airbases and Squadrons should not try to move to pipeline source nodes on arrival. They can still be pipeline support units, but they must arrive in the source node hex.

As part of the correction to this error, a new SVP Warning was added. WARNING 119 is now generated if an Airbase or a Squadron is assigned as a pipeline support unit, but does not arrive in the source node hex.

3.2.40 M-J-2000164 Remove Reference To A Destroyed Order

Problem: An HRU ordered to overwatch makes a situational check for ammunition as it considers whether or not it is currently engaged or is in combat. If it fails the check, the order is rejected and destroyed. The HRU usually maintains a pointer to its current order in case it has to move into position before beginning its tasking. However, when a rejected Player order is destroyed, its pointer should be reset to zero. It was not in this case, and the resulting false reference caused a model crash.

Solution: The code was modified so that now the HRU ORDER POINTER is reset to zero when the rejected Player order is destroyed.

3.2.41 M-J-2000165 Write 15 Characters For All Reference Data

Problem: When the CEP is started or restarted, it writes out a vocabulary file for each side and a Controller’s vocabulary file. These files contain scenario specific vocabulary names, such as the names of all air defense classes. JTLS requires that these names be unique and no longer than 15 characters. For a few of the vocabulary items, only 14 characters were being written.

Solution: The code that writes all the vocabulary items was checked. Those items that were less than 15 characters were increased so that 15 characters would be printed.

3.2.42 M-J-2000166 Print Error On OPM IFF Table

Problem: When the OPM Air Control Prototype HTML page was generated and the number of sides was greater than 9, the IFF table was not aligned. This made the readability of the table hard and hampered its usability.

Solution: The alignment error was being caused by not enough spaces being printed out before the beginning of the next column. We increased the number of spaces from 7 to 8 and the alignment problem was solved.

3.2.43 M-J-2000167 GIAC Sends An Illegal Time Of NOW

Problem: The only legal times which should be sent in JTLS orders are Date Time Group (DTG) times ddhhmmZmmmyy, for example 120731ZMAY00, and the word ASAP. It is possible to make a GIAC send a time of NOW. You can do this by taking any time field and, using the field's entry panel, enter a time of 0 day, 0 hour and 1 minute.

In addition if you change the time to 2 minutes a normal Date Time Group time value is created, but it is a nonsense number. In this case the DTG field would be filled with a 000002JAN00. This is not a legal date time group because there is no zeroth day in January.

Solution: We have placed a patch in the model to prevent this from causing a problem, and are waiting for a permanent fix to be developed by the Los Alamos National Lab.

This STR is not closed with this release. It will be closed when the problem is corrected in a future GIAC release.

3.2.44 M-J-2000168 Clarify Air Transport Mission Report

Problem: An instruction on the mission's transport list need not specify a unit with which the indicated action (supply PICKUP, DROPOFF, or INSERT) is to be conducted. However, the message to player needed to be reworded to more clearly indicate when that is the case.

Solution: The wording of the mission report entry for each of these actions was changed to specify the "no unit" situation when it exists.

3.2.45 M-J-2000169 Withdraw Order Through Minefield Crashes System

Problem: The model crashed while processing a Withdraw Order given to an Incapable unit if the Order had a route whose next point included a minefield in the hex.

Solution: A local variable in the code mistakenly held the unit posture. Now, that variable holds the unit's "Moving Unit Posture". This posture is based on the terrain type and the unit's mobility/counter-mobility prototype, and applies only when the unit is moving through a minefield. Also, a new routine was added that selects the appropriate value for this minefield posture variable given the inputs that define the unit and its current situation. Finally, some other routines were modified to enhance code efficiency.

3.2.46 M-J-2000170 Mission With Refuel Chit Did Not Refuel Properly

Problem: If a tanker mission had more refuel chits than fuel available, the tanker assignment algorithm incorrectly told a tanker that there was no fuel available when in fact there was fuel available.

Solution: When a mission decides that it needs fuel, it looks through its refuel chit list. If it has a refuel chit, it asks a few questions about the tanker to make sure it is a feasible tanker.

It asks questions such as: “Is the mission flying?”, “Is the mission that needs fuel within range?” and “Does the tanker have enough fuel to fill the refuel chit?” It is this last check that was not completed logically if the tanker mission was over-tasked, in other words had reserved refuel chits for more fuel than what the tanker had available.

The check asked how much fuel the tanker had, and then it subtracted all fuel reserved for other missions. If there was any fuel left, then the model says this was a feasible refueler. This logic is fine for missions that do not have a refuel chit, but should not be used for missions that have a refuel chit. Consider the following example:

Tanker has 1800 gallons of fuel and three refuel chits:

- Mission 1 has a chit for 1500
- Mission 2 has a chit for 1500
- Mission 3 has a chit for 1500

When Mission 1 asks is this a feasible tanker, it says For every refuel chit that is not for me, subtract the amount of the chit from available. If there is any left, the tanker is feasible. Specifically it used to do the following:

1800 gallons available

First chit is for me - do not consider

Subtract 2nd chit from 1800. $(1800-1500) = 300$

Subtract 3rd chit from 500. $(300-1500) = -1500$

Is there any fuel available - NO; therefore this is not a feasible tanker.

This is not true. Mission 1 has as much right to that fuel as any other mission on the list. Basically if the mission has a refuel chit and the tanker has any fuel, the tanker now passes the fuel available check when determining whether a tanker is feasible.

While testing this fix, we also noticed that a mission that was running low on fuel decided to head for a tanker 100 KM away when it was only 20 KM away from home. We also corrected this problem.

When a mission determines whether it needs to head for fuel, it no longer considers whether it can land with spare fuel. On its way home, the mission is now simply concerned with whether it can land with its available fuel.

3.2.47 M-J-2000171 Controller Bridge Repair Does Not Restore Barrier

Problem: A user at a Controller GIAC changed the strength of a bridge target to zero. The hex barrier with which the target was associated changed (as it should have) from Heavily Bridged River to just River. The problem was that when the Controller changed the strength back to 100%, the associated barrier did not change from River back to Heavily Bridged River.

Solution: The problem was that the code that determined the number of lanes to be considered in order to change the barrier type used the percent capable of the target BEFORE it was changed upwards from zero. The solution was to modify the target percent capable (for bridges and tunnels) before calling the routine that determines the new barrier class after a strength increase.

3.2.48 M-J-2000172 SVP Incorrectly Generates ERROR 111

Problem: The SVP checks the validity of Air-to-Ground weapons loads. It generates errors and warnings if the cumulative probability of kill is either zero or too low when the load is assigned to a mission for use against the targets in the specified TTG. The problem was that the error condition was being generated for a weapon that is ineffective against a SAM.AAA target, but is, in fact, effective against the fire control radar that is associated with the target.

Solution: The code that checks Air-to-Ground weapons loads was changed. Now, when a SAM.AAA target is considered, it uses the larger of the weapon's p(K) against the target and its p(K) against the target's fire control sensor in the cumulative p(K) computation.

3.2.49 M-J-2000173 CEP Crash In Formation Order With Boundary Overrides

Problem: A Player submitted a CREATE FORMATION order that included instructions for the formation to override some National Boundary restrictions. The model crashed attempting to create the order compliance message to the Player.

Solution: The order processing routine (ORDER FORMATION) calls a subroutine (CHANGE FORMATION OVERRIDE TAGS) to reset the formation's National Boundary Override Tags. This subroutine sends a message when the tag values are changed. The problem was that ORDER FORMATION did not call FORMULATE MESSAGE to reset the message build file after the return from the subroutine call and prior to writing that compliance message. The error was corrected.

3.2.50 M-J-2000174 Commander Mission Trouble Report Duplicate Messages

Problem: While testing the new functionality associated with ECP M-J-2000101, Pilot Trouble Reports, it was noted that the attacked air mission generated two, identical Trouble Reports that both went to the attacked air mission's MPP. The air engagement had weapons fired by both sides. It was certain that the attacker was fired upon, because he was downed by the return fire from

the attacked side, but he never reported being fired upon. He should have reported the return fire, before he was reported as lost.

Solution: The code was changed so that both sides reported being fired upon, when appropriate.

3.2.51 M-J-2000175 Line Length Format Errors In MPP Messages

Problem: The length of a line displayed on an MPP messages is limited to 80 characters by convention. This allows the message to printed without distortion on standard sized paper. Line lengths for MTF formatted messages should be limited to 69 characters to be compatible with external systems. Line lengths are determined by the presence of "start new line" characters in the message data files. A line that significantly exceeded 80 characters was noted in the message generated by one of the SHOW SUP PARAMETER orders.

Solution: A check of the message definition files revealed that the start new line character (the "\n") was omitted for the offending line of text. This error was corrected. In addition, a complete check of the other messages was made in an attempt to locate other instances where a new line character needed to be inserted. A total of 16 other instances of missing "start new line" characters were located and corrected.

3.2.52 M-J-2000181 Targets In The Database At LT 100 Percent Cause Errors

Problem: Target entities may be represented in the initialization database as damaged, i.e., having a percent capable of less than one hundred percent. For targets that are represented as a group of capabilities (SAM/AAA/SSM with multiple launchers, MHE with multiple facilities, Runways with (possibly) multiple cuts), the appropriate degradation of the individual item capabilities was not being accomplished. This occasionally led to such a target being hit by artillery or air, and being reported as having suffered a negative amount of damage, thus causing confusion.

Solution: New code was added to ensure correct initialization of the damage, but only during a Start as opposed to a Restart.

3.2.53 M-J-2000182 Model Crashed When Unit Tried To Withdraw

Problem: During Exercise Yildiz 2000, the CEP crashed when a unit that was being attacked by an HRU tried to withdraw. The crash was caused by the unit only having a single route hex when it tried to get ready to move. Two are required, the current location and a destination.

Solution: Despite extensive efforts, we have been unable to reproduce the error that caused the crash. It appears that the only way the crash could occur is if the unit arrived in FIND WITHDRAWAL ROUTE with a single route hex, which should never happen. To prevent recurrence of the error, that circumstance was guarded against with a call to the LOGIC ERROR routine, and a removal of the single route hex. During attempts to reproduce the error, we did find a way for a unit to

get two ground move events scheduled at the same time. The unit must be in DEFEND, with a WITHDRAW route with more than two points specified, be forced into DELAY or WITHDRAW, and the second hex in the route must go through an ENEMY occupied hex.

In that somewhat unusual case, both PURGE AND MOVE and CHANGE POSTURE MOVE schedule a move for the unit. The possibility of more than one ground move event has been known for some time, but we were unable to reproduce that phenomenon until now. That error was corrected as well.

3.2.54 M-J-2000184 Ship Comm Site Links Not Being Created

Problem: The automatic Integrated Air Defense (IADS) links between shipboard communications sites were not being created.

Solution: When High Resolution Units (HRUs) were given the ability to have communication site targets, we implemented the improvement so the communication site targets would always be able to communicate with SAM Sites and Air Search Radars also owned by the HRUs parent unit. To implement this capability the code which creates automatic IADS links between unit owned targets was moved in the data initialization logic from after the read ASCII checkpoint data procedure to before the read ASCII checkpoint data procedure. This insured that all intra-unit targets links are created before the parent unit targets are distributed to its HRUs.

Unfortunately, the placement of the automatic IADS creation routine resulted in the scenario ships not having all of the information needed to create the automatic IADS links between shipboard communication sites. Therefore these links were not being created. The creation logic was changed so both the shipboard communication links and the HRU-parent unit links would be properly created.

3.2.55 M-J-2000185 Linked HRUs Left Behind When Squadron Force Self-lifts

Problem: The situation may arise where an aviation squadron satisfies the decision criteria to fly itself out of danger in an effort which is analogous to a ground unit withdrawing from a hex after combat reduces its strength below a defined threshold. There had been no consideration given to handling HRUs which might be overwatching the squadron. When the squadron flew away, the linked HRU(s) were left behind, but were not told to terminate overwatch. When the squadron next found itself in combat, the overwatching HRU would respond as though co-located with the squadron, to include causing damage from weapons which were nowhere near the attacking enemy unit. This "false combat" resulted from the presumption that the HRU is co-located with the overwatched unit when it engages a unit that is attacking the HRUs protectee.

Solution: Rather than leave the overwatching HRU behind and terminating the link, the HRU is taken along with the squadron when it evacuates and the overwatch is maintained in their new location.

3.2.56 M-J-2000186 Port Detachments Not Reporting Their Higher HQ To GDS

Problem: Detachments that were automatically created due to a unit being processed through a port did not report their higher HQ to the GDS. External programs that used this data to determine the highest HQ on a side ended up instead with multiple candidates.

Solution: In the code that changed the higher HQ, we did not report it to the GDS if the former HQ's side did not match the new HQ's side. This exclusion exists to prevent units that are involved in a side change from sending GDS updates until the change is complete, avoiding GDS view mask errors. However, for a newly created unit, the former HQ's side did not exist, and therefore never matched the new HQ's side. The code was changed to allow the new higher HQ from this exception to be sent to the GDS.

While fixing and testing this problem, two other errors were discovered. The first was that the ATOG unit lists were not alphabetically ordered, making finding a specific entry in the list difficult. This was fixed at the same time.

The second error was that MPPs sometimes deleted waiting messages on Startup. When an MPP connects to the GENIS, it drops all messages that are more recent than the current game time. This is done in case the game has been restarted from a prior checkpoint. However, it was noted that an MPP would connect, start to download all waiting messages, then delete many of these new and unread messages. This was due to a round off error where the game time is delivered to the nearest second, but message times are finer resolution. A round off factor has been added to the time comparison to solve this problem.

3.2.57 M-J-2000187 Barge Optimization Does Not Work

Problem: Barges could not find their way across open water hexes to deliver supplies.

Solution: The optimization algorithm was finding its way to water hexes, but could only follow the beach. It did not properly look across ocean terrain hexes into an adjacent ocean terrain hex. The problem was solved.

3.2.58 M-J-2000188 Inconsistency Between DDS, OPM, and SET Order

Problem: On the SET GROUND GENERAL PARAMETERS order, the "Destroyed CS Visibility Time:" is a change option. This allows the Controller to change the database parameter CATASTROPHIC KILL TIME. The problem was that the text describing what to change was inconsistent with other references to that parameter. In the DDS (Miscellaneous Modeling Parameters List), it was listed as the "Catastrophic Kill Time". Similarly, the parameter can be found in the OPM as the "The Catastrophic Kill Time Is:" entry.

Solution: In the model, the CATASTROPHIC KILL TIME holds the length of time that the remnants of Combat Systems that have been destroyed and left behind by moving units remain in the

game. For this amount of time, they are available for detection by intelligence gathering assets (Recce missions, etc.). Therefore, "Destroyed CS Visibility Time" is the more descriptive term. The OPM and DDS were changed to use these words when referring to the parameter.

3.2.59 M-J-2000189 Naval Mining Status Messages Sent To Wrong Player

Problem: During a recent database test, the Naval Player sent a minesweeping order to a single ship not in a formation. The ship carried out the order as it should have. A formation was created consisting of that ship, and the operation was conducted. The problem was that the reports of the status of the sweeping operation did not go to either the Player who sent the order or to the Player who was the designated Reporting Player for the ship. Instead, they went to the Player who had Primary Command Authority over the naval unit.

Solution: In a case such as this, the model builds a CREATE FORMATION order within the routine that processes the mining directive. This order is executed to construct the formation that will carry out the operation. The problem was that the model filled the CREATE FORMATION order required field that holds the reference to the player who would have sent the order with the wrong identifier. The model therefore believed that the Player who held Primary Command Authority over the ship had created the formation, and addressed status messages accordingly.

The code was changed so that now the CREATE FORMATION order that is built indicates that the Player who sent the mining order also created the formation.

It should be noted that the player who sends the mining order is not necessarily the specified REPORTING PLAYER for the ship. However, during an exercise, it would seem to be usually prudent to ensure that a Player who was directed to conduct such operations would also be designated at the reporting player for the relevant ships.

3.2.60 M-J-2000190 Unit Hierarchy Duplicate Problem in DDS

Problem: The DDS function "Unit Hierarchy Duplicate" was not copying the bridge and communication targets if they were owned by and/or associated with a subordinate of the duplicated unit.

Solution: The DUP_OWNED_TGTS_FOR_SUBORDINATE and the DUP_ASSOCIATED_TGTS_FOR_SUBORDINATE program units pl/sql code were modified to include the bridge and communication targets.

3.2.61 M-J-2000191 OPM Using Wrong UOM for HRU Radius Of Response

Problem: The SIP was not converting from kilometers to meters when generating the On-Line Player's Manual pages displaying the Radius of Response for HRUs. The UOM should have been displayed in meters, not kilometers.

Solution: Changed code to convert the data correctly.

3.2.62 M-J-2000192 Model Crashed When Controller Kills Cruise Missile Twice

Problem: During exercise Reaction Combine, the model crashed when two Controllers attempted to kill the same cruise missile. The first order received by the model worked fine. The second order crashed the system.

Solution: The problem was that the routine which finds the Cruise Missile structure was incorrectly returning a pointer to a different type of fire mission when it could not find the specific Cruise Missile identified by the Controller's order. The problem was solved.

If a Controller attempts to kill a Cruise Missile which is no longer in the game, the model now correctly identifies the problem and sends a message back to the Controller indicating that the order has been denied.

3.2.63 M-J-2000193 Improve Drawing National Boundaries

Problem: To ensure that boundary segments did not leave gaps in the hexes where the came together, every hex edge in that hex was tagged. This caused the starting and endpoint hexes to be completely enclosed by the drawn boundary.

Solution: The hex tagging code was changed. It now keeps track of the starting hex, and also the starting vertex. The ending hex is then compared, and if they are the same, and the region is to be enclosed, then the hex edges between the starting and ending vertices are tagged.

3.2.64 M-J-2000194 Harpoon Improperly Fired On Ship

Problem: Australia reported that a zero Pk Harpoon weapon was being fired on a ship in preference to another weapon that had a positive Pk.

Solution: It turns out that the weapon was not being fired, but an interim Patrol report incorrectly stated that the weapon was fired. The interim Patrol report was changed to not report what was fired, but to report what weapons remaining on board the Patrol mission. The purpose of the report was to inform the user of the mission's remaining load, so the user could decide whether the Patrol mission should continue patrolling or should be sent home.

While locating this error another problem was discovered. The routine that determines whether weapons should fire, FIRE.WEAPON, contained the logic to determine whether the weapon was interdicted by terminal area air defense, prior to impact. It was possible for this computation to be done for a weapon that never really fired. For example, assume that a mission had two types of point ground weapons on board, Weapon A and Weapon B. Further assume that both Weapon A and Weapon B can be interdicted by Air Defense and that the mission has 4 of each type of weapon on board.

The fire routine determined whether the weapons were subject to air defense interdiction. If they were interdictable, the routine determined if the interdiction was successful or not. Assume that air defense got two Weapon A kills and two Weapon B kills.

The fire logic passed two Weapon A weapons and two Weapon B weapons to the assessment routine. The assessment routine determines that there were no suitable targets in the area for Weapon A. Therefore, the two Weapon A weapons were returned to the FIRE WEAPON routine and given back to the mission. The two Weapon B weapons did find suitable targets and their damage assessed. They were not returned to the air mission.

The air mission continues flying because it still has two Weapon A weapons on board, but this is not correct. It should still have four Weapon A type weapons on board since there were no suitable targets in the area.

This was corrected. The interdiction of the weapons by air defense was moved from the fire logic to the assessment logic.

3.2.65 M-J-2000195 HRU LIST Utility Listed On Player GIACs

Problem: The HRU LIST utility directive is used only on a Controller order. However, it was included as a valid utility selection on Player GIACs. Since it is a Controller-only utility, when a Player selected it from under the “Utilities” button, nothing happened. No utility template was displayed.

Solution: No template was displayed because the OPP had correctly written this utility definition only to the Controller’s GDF files. The option to select the HRU LIST on a Player GIAC was removed from the appropriate menu definition files. Also, reference to the utility was removed from Appendix B of the Player’s Guide in the JTLS documentation.

3.2.66 M-J-2000196 MPP Falsely Reports A Problem For Change Air Mission Parameter

Problem: When a Change Air Mission Parameter Order was sent with changes to the Protected Mission List, the MPP reported a problem with the Patrol Area. Since the order should not involve Patrol Areas, the report was erroneous.

Solution: The routine ORDER.CHANGE.MISSION.PARAMETER was corrected so that the erroneous report is no longer generated.

3.2.67 M-J-2000197 LOG DEBUG Flag Causes Logistics Report Crash

Problem: If you told the CEP to duplicate all Logistics Reports and you had the Logistics Debug Flag turned on, the model could crash. Specifically, it only crashed if any of the reported units did not have enough supplies to support the unit’s combat systems. This could have only happened if the Controller has been altering a unit’s Supplies On-hand manually.

Solution: The code that reported the problem to the logistics debug file was removed. This allowed the remainder of the message to be properly placed in the Message Build File and the model no longer crashes.

4.0 REMAINING ERRORS

4.1 INTRODUCTION

Every effort has been made to correct known errors in the model. All errors that resulted in a CEP catastrophic software failure (“CRASH”) have been corrected. Other corrections were made based on their resource cost-to-benefit relationship.

Correction of the remaining STRs, however, must be postponed to a later version because of time and resource constraints. These problems are expected to be corrected prior to the next release of JTLS. If there is an immediate need for a code correction to any of the following STRs (i.e., for an exercise planned to occur before the release of JTLS 2.3), contact the JTLS Configuration Management Agent. (Refer to the Abstract on page ii of this document for the current address.)

4.2 REMAINING ERRORS

The errors explained in this section are errors which should be noted specifically because they do affect the basic functionality of JTLS. Information is provided concerning the extent of the error and suggestions for avoiding or minimizing the effect of the problem.

4.2.1 M-J-93159 Lanchester Double Kills

When two opposing units’ centers are within co-located distance of each other, 100% of the combat systems are eligible to kill each other. The combat power distribution of the units is used to determine which combat systems are eligible to kill units in the same or adjacent hexes that are not co-located. This can lead to some combat systems being allocated to kill twice in a single Assess Combat period.

4.2.2 M-J-94168 IMT Shows Non-Existent Subordinates

Whenever a unit is split by the game and then joined again (such as in a airlift/drop or amphibious pickup) the parent unit on the IMT continues to show that it has subordinates, even after the units are rejoined. This is very confusing. The subordinate field should be set to zero when the units are joined.

4.2.3 M-J-95174 Naval Vessels Don’t Use Fuel

All naval units have been allocated fuel consumption data in the SUP menu. Utilizing supply class category 7 (Class III - Ground Fuel), rates for both normal consumption and usage per kilometer have been entered. Examination of both the IMT and MPP logistic status reports however, reveal that the CEP is only calculating and applying normal consumption rates when units are on passage.

The Analyst guide (p6-53) indicates that fuel consumption for moving naval units is calculated by combining both the normal consumption and usage per kilometer rates (Of note though, ground units (land-based) are not affected and both consumption rates are computed in accordance with the Analyst Guide. It would therefore appear to be peculiar only the naval module. Ships should use fuel per km. This usage factor should be modified based on ship percentage of max speed.

4.2.4 M-J-95235 Destroyed Target Sitrep Strength Incorrect

When a target is destroyed such as a bridge or pumper station, the GIAC sitrep still has the strength of the target as 100. Genis also displays strength as 100. Apparently, the percent capable is being updated in Genis from JTLS, but not the strength which is used to fill the GIAC sitrep. This is a problem in both 1.85B and the 2.0 versions

4.2.5 M-J-95242 JTLS Radius Of Effects

The radius of effects for air missions is not being calculated correctly. The analyst guide states that the radius of effects is determined by the TW.RADIUS.OF.EFFECTS of the area weapons employed and the delivery altitude of the air mission. At the max altitude for the aircraft type, the covered area is the total area for all area weapons fired. Testing has shown that the max radius of effects occurs when the aircraft's mission altitude is anywhere between one half the max aircraft altitude and max aircraft altitude. In the routine, Determine Covered Radius, the area overlap calculation statement shows the max altitude multiplied by 0.5. As such, the radius of effects is not calculated correctly.

4.2.6 M-J-96007 Air Missions Flying Backwards

Air missions looked as if they were flying backwards -- would update on GIAC in a different direction then the course vector was pointing. Believe that the course is not updated when the mission is looking for fuel. This was observed on a CAP mission and also happens when a mission is intercepting

4.2.7 M-J-96008 Air Report

JTLS 1.85 provided the ability to obtain the report for one squadron or all squadrons. JTLS 2.0 only provides capability to get one unit at a time.

4.2.8 M-J-96011 All Sides Informed About Supply Dump Error

Created a supply dump using the Cache Order. Looking at the GDS shows that all sides are informed about the dump -- they show up on all sides IMT. Only controller and the side that created the dump should be informed about the dump initially.

4.2.9 M-J-96016 Multiple Supply Storage Targets

A supply storage target should not be allowed to be created in the same hex as another one on the same side. A user was able to create several open storage supply targets right on top of each other.

4.2.10 M-J-96020 Air Lift Drop Report Message

The subject line of the message received when a player requests an air lift drop report for a mission that has completed the lift or drop, or is not conducting a lift or drop, reads “Air Order Received, <mission name>, Cannot Comply”. It should be titled, “Air Lift/Drop Report Cannot Comply”.

4.2.11 M-J-96031 MPP Messages For Canceled Missions In Error

If an airbase is magic moved with several squadrons on active missions that need to be canceled or with squadrons in the middle of a self lift, the subsequent message generated for the situation has several errors. The changes required are too risky during the exercise. The problem will not cause a crash, but will cause the MPP to incorrectly display the message contents.

4.2.12 M-J-96037 Can't Take Control Of Unowned Runways

It is impossible for anyone to take control of an unowned runway in the hex it is already in. To do this the controller must enter the order, but the order is not on the controller's menu. We have tested this on a sample menu, it doesn't crash but the runway's owner is not set.

4.2.13 M-J-96039 Withdrawing Units Cannot Destroy Supply Targets

There appears to be an error in the interface between the CEP routines DESTROY CACHES ON LEAVING and IS TARGET SAFE. The first calls for supply targets that are another side or BLACK, but the second always says BLACK targets are safe. This means that a unit withdrawing will never destroy BLACK SUPPLY TARGETS, even if they could do so. The code needs to be updated, a complicated fix.

4.2.14 M-J-96042 Logistics Report Problem

The Logistics Report will report amounts as single decimal points (e.g., “.”). This is caused by format D(8,0), and an amount smaller than 1 ton. To correct this situation, all of the Logrep files need to be checked to determine if it is feasible to change the D(N,0) format specifications to at least D(N,1).

4.2.15 M-J-96043 Can't Magic Move Airbase To Location With Existing Airbase

One cannot Magic Move an airbase into a hex wherein there is a runway that is on the same side as the airbase, and is part of the initialization database. The airbase will not automatically assume

control of the runway. If the runway is one that was created by Controller action, the airbase will assume control of it. If this error is causing problems for upcoming exercises, the Configuration Manager should be contacted for a code fix to solve this problem

4.2.16 M-J-96046 Group Ground Move Delayed To Lead Unit

There is a problem when a group ground move is sent. The directive is delayed to the lead unit. When the lead unit learns about the move, it immediately tells the units in the follow-on group. This could lead to directives being received out of order. Assume the user sends a directive at 0100 and the CEP determines the lead unit should receive the message at 0200. The lead unit cannot receive any other directives until after 0200. The CEP ensures that directive receipt is in the same order as the user sent the directives. This is not true for the follow-on units. If the user sent an order at 0115 directly to one of the follow-on units, the follow-on unit could receive the 0115 directive prior to the order sent at 0100. If this error is causing problems for upcoming exercises, the Configuration Manager should be contacted for a code fix to solve this problem.

4.2.17 M-J-96048 Unit Would Not Fit On A Formation

There was a report by a player that he received a message which said that a unit would not fit on a formation, but then it proceed to load the unit completely. Though the message and action were inconsistent, no adverse effects were noted.

4.2.18 M-J-96250 Pass Unit Intelligence Does Not Include Update Information

Pass Unit Intelligence does not follow any of the Update Information logic, so we are not going through routines such as Alter Launch New Information procedure. This can cause Air Missions to head toward old perceived information locations if they rely totally on the information obtained through Pass Unit and Pass Target Intelligence capability. If your scenario involves a side which depends solely on this intelligence collection methodology and the side will be sending attack missions, the Configuration Management Agent should be contacted immediately to obtain a proper fix to this problem prior to your exercise.

4.2.19 M-J-96261 Make Target Types List Mandatory For Unit/Location Targeting

Make Target Types List mandatory if you put in a unit or a location. Until this fix is provided, GIAC order input personnel always should enter a Target Types list for unit or location air-to-ground attack missions.

4.2.20 M-J-96279 Increased Precision Guided Weapons Decreases Losses

The losses in Combat Systems suffered by a unit were observed to decrease when the number of precision-guided area weapons was increased. For example, four GBU10s were observed to kill fewer Combat Systems than one GBU10. The cause of this problem is still under investigation. If this

error is causing problems for upcoming exercises, the Configuration Manager should be contacted for a code fix to solve this problem.

4.2.21 M-J-96400 IMT Supply Category Line Disappears When The Value Is “0”

Recommend that a Unit’s IMT On-Hand Supplies (OHS) specific category line remain when supplies are gone and no Due-In’s are established.

When a unit runs out of a supply category and no Due-In’s are scheduled, the unit’s IMT On-Hand supply line for that specific category disappears from the menu. This makes it very difficult for a player who is controlling 40 or more unit icons and being overwhelmed at times with MPP messages to keep track of exactly what supply categories need his attention or thwarts his attempts to trouble-shoot a supply problem. The constant presence of the supply category line, even if empty, will save the Player wasted time either making early printed copies of all his unit OHS for later comparison or referring unnecessarily to the OPM TUP/SUP to determine what empty supply categories his units have that require resupply. Certain supplies (i.e. fuel/targetable weapons) are critical and unnecessarily impede game execution, if not maintained at required levels for play in an automated logistics scenario.

4.2.22 M-J-96435 GIAC New Unit Existence Problem LANL

New units created with the detach order are not “Known” to the game the first time you try to type the name into the “Unit” field. If you use map input or select the unit from the “List”, it is accepted. After the first time accepted, then you can type in the name into the field.

4.2.23 M-J-96441 Quick Order - AG Attack

A user reported the inability to change 1st Target Area default setting for the Air Ground Attack order, making the Quick Order AG Attack unusable.

4.2.24 M-J-96445 Reporting Bridge Damage

When an aircraft conducts an air-to-ground mission against a highway bridge, damage reporting is not consistent. When the aircraft returns and the mission report says the bridge is at 0% capability, the IMT and SitRep still report the bridge capability as 100%. When another aircraft is sent against the bridge, it flies over and doesn’t drop any munition because, according to the mission report, the target isn’t there (it’s destroyed). When this aircraft returns, the IMT and SitRep still report the bridge at 100%. Much later, although not consistently, the bridge status changes in the IMT and SitRep to 0%. If the bridge is destroyed, the IMT and SitRep should reflect the information provided in the Mission Report. The problem reported is being investigated. If this is causing a problem for an upcoming exercise, the Configuration Manager should be contact to implement a fix to the problem as soon as possible.

4.2.25 M-J-96476 Error In Time Report For SET.SP.CONVOY.DELAYS

When a time value of 2 hours 0 minutes is entered into any field of the SET SP CONVOY DELAYS window and then sent to the CEP, the MPP returns a message that shows a time of 1 hour 0 minutes instead. This is a known round-off error. A solution is being investigated.

4.2.26 M-J-97026 Incorrect Mission Report Locations

Some mission report locations appear to be incorrect. The ADA engagement location is an example. The problem is being investigated.

4.2.27 M-J-97048 Fire Mission Not Deleted From GENIS

It appears that, in some circumstances, an Artillery Fire Mission that has been reported to the IMT is deleted from the CEP without the GENIS being informed. This happened in the case of a unit that was moving when it was supposed to fire the mission. The Fire Mission still showed on the IMT several hours later.

4.2.28 M-J-97059 Inconsistency Between Regular Run And Pusher

There is a major inconsistency between a regular run and a run created using pusher. When an order with ASAP is sent, the READ KEYWORD routine sets the data parameter to TIME.V. When pusher reads in the order, TIME.V is much earlier than it was when the order arrived in the first place. For orbiting missions and alert missions, this alters when they will go off alert by a great deal. This must be fixed and made consistent. It appears that both TIME.V and order receipt time must be saved to the cil file to accomplish this task.

4.2.29 M-J-97068 Changing Mission On Alert

When a ship moves, it changes the attributes of missions that are on alert. It also needs to change alert hex for those missions that are not currently on alert, but still have their alert hex pointing to the ship's location.

4.2.30 M-J-97069 Availability Of Aircraft

When a unit loses a fraction of an aircraft to Area Fire or Lanchester combat, the whole aircraft becomes unavailable for air missions. However, the report of Available Aircraft on the IMT is expressed in whole numbers. This may result in a unit incorrectly showing a damaged aircraft as available.

4.2.31 M-J-97085 Lost ROE Entities

ROE objects are periodically being lost from the G Data System (GDS). The cause of this loss is unknown, but it does have affect on the Air Tasking Order Generator (ATOG) retrieval process. Due to the loss of ROE objects, the ATOG may enter an infinite loop.

The problem can be fixed if the ROE's parent unit is known. Specifically, a Controller can enter a GDS Unit Update order for the specific unit. This causes the JTLS model to send a delete for all of that unit's GDS objects, and then sends an initialization for all new objects. In affect, this constitutes a download for a single unit.

Currently, determining the parent unit of the missing ROEs is an arduous process that requires C code Technician to traverse a rather twisted path. The proposed change would generate an error message for missing ROEs that identifies the parent unit. With this information, a JTLS Controller can immediately correct the problem and the ATOG can be quickly restarted.

4.2.32 M-J-97173 Assessment Of ARTY-fired Weapons Is Incorrect

Assessment of ARTY-fired area PG weapons vs. bridges and interdiction points appears to be incorrect. PG weapons are causing less damage than non-PG weapons. Effective PK is decreasing as number of rounds increases for PG ARTY-fired area weapons.

4.2.33 M-J-97241 Ship Continuous Tracking Not Working

The new unidentified object design indicates that ships which are continuously tracked will not have unidentified objects created. A continuously track naval unit and all of its targets are creating unidentified objects. They should not be doing this.

4.2.34 M-J-97255 Air Mission Find In Middle Of Ocean

A user does a find on a pre-launched air mission that is home based on a moving naval unit. The X marking the location of the pre-launch mission is where the naval ship was when the order entered the system. As the ship is moving, the new location of the pre-launch mission is not being sent to GENIS and thus GIAC.

4.2.35 M-J-97256 Periodic Report Air Supplies And Fuel Not Correct

The arrays which hold air supply usage are not being maintained correctly given the new MISSION RESOURCE ALLOCATION event.

4.2.36 M-J-97261 Submarine Detection By Ground Sensors

A moving submarine does not get full credit for coverage time by sonars on board other ships or submarines. It gets full coverage time for airborne sensors but not ground based sensors.

4.2.37 M-J-97266 GDS Target Update Error

When the CEP accomplishes a GDS Target Update, the GENIS ends up knowing about the re-initialized target, but the GIAC does not.

4.2.38 M-J-97267 Killed MHE Target Listed As Inactive

A SOF team went in and killed an MHE target. The target was destroyed and its Active flag was set to Inactive. This removed the target from the GIAC display. However, the Controller therefore cannot send an order to repair the target because the target must be active to be selected.

4.2.39 M-J-97288 Personnel Unit Of Measure Error On MPP

The CEP is converting the quantity of personnel into units labeled, “each” as part of the Logistics rollup report. The MPP receiving the report data from the CEP assumes that the quantity received is in tons and is converting it to units labeled, “each” again.

4.2.40 M-J-97291 Manual Pairing And Protection Radius

The JTLS 2.1 Analyst’s Guide, Section 8.4.8.2, second paragraph discusses the rules for manual pairing of CAP missions. The paragraph states that the manual pair order will only check to determine if the new interceptor has enough fuel and appropriate weapons before sending it.

In the model however, a manual paired mission will do the following if the intercepted is out of the protection radius of the interceptor. The interceptor will take one hex move toward the intercepted, then return to its orbit location.

4.2.41 M-J-98070 Slightly Inaccurate Runway Length Sometimes Used

When AIRCRAFT.CLASS data are read, the takeoff and landing lengths are read in integer format. These are then assigned to the double real attributes of AIRCRAFT.CLASS. However, sometimes the double attributes become values slightly larger than the actual version of the integer in the database.

4.2.42 M-J-98076 Inconsistent Number Of Aircraft After Unit Detached

A Player noted that the IMT indicated that a Squadron had a TOE of 10 aircraft, but only 9 Available. There had been no aircraft lost or damaged during the game. The Squadron was a Detachment from another Squadron. The Parent Squadron had 35 aircraft, and the Detachment order specified 28% (0.28). The result was one Squadron with 10 TOE and 9 Available, and the other with 25 TOE and 26 Available.

4.2.43 M-J-98211 Cancel OTH Collection Area Report

An Area Report was created with Report source as “OTH” and OTH Collection selected. This external event is not shown in the Scheduled External Events Report. Consequently, the area report cannot be cancelled by the Cancel Event Order as the Event Sequence Number is unknown.

4.2.44 M-J-98281 Variable AC WC FACTOR Not Used

As part of the enhancement of the weather representation in JTLS 2.1.3A, the AC WEATHER FACTOR should have been deleted. Instead it was changed to the AC WC FACTOR. It is not used anywhere in the model, and should be deleted, because there is no requirement for it. Weapons effects are handled by the TW WC FACTOR, sensors are handled by the ST WC FACTOR, and the effect on aircraft is handled by the AC.WC.TAKEOFF.CAPABLE and AC.WC.FLY.CAPABLE parameters.

4.2.45 M-J-98297 Air Missions Don't Completely Comply With Egress Routes

Each assigned point on an air route has an associated altitude. The mission should climb (or descend) to that altitude upon reaching the point and attempt to maintain that altitude until another altitude is assigned. Air missions that have egress routes should fly from the last egress route point to home base at the altitude assigned for the last egress route point. They are not doing so. Instead, they fly from the last egress route point home at their Most Efficient altitude.

4.2.46 M-J-99054 Attach Units Create Extra GENIS Objects

When a ATTACH UNIT order is given, the GENIS returns the message, “storeData: Update Failed Unit not in Database”. However, the GIAC removes the unit from the display, the Logistics reports show the units are combined, and the player is still able to detach the units. But the failed update still creates problems with the Supply_category memory objects held in the GENIS/GDS. Each time a DETACH UNIT order is given for units that failed to update successfully in the GENIS (as above), the Supply_category memory objects increases by a factor of n (n being the number of Supply_categories held for all of the Supply_categories in JTLS) instead of being increased only by the number actually held by that unit’s TUP. The memory allocation required continues to increase, thus reducing the efficiency of the model, until the Primary GENIS is shut down and restarted.

4.2.47 M-J-99122 Halted Helo Squadrons Show “Mission” As MOVING

A helicopter squadron can be ordered to conduct a ground move to a new location. A helicopter squadron that is moving will accept orders to launch aircraft. However, when it begins air operations, it stops. After the completion of air operations, the squadron does NOT resume its ordered movement. Its posture reverts to DEFEND, but its “Mission” remains “MOVING”. Since the squadron does not resume its move, its “Mission” should also revert to “DEFEND”.

4.2.48 M-J-99123 DDS Checkpoint Load Data File Inconsistencies

There are inconsistencies between scenario files and checkpoint files. In order to load checkpoints into the DDS, the structure of the checkpoint files needs to be exactly the same as the structure of the corresponding files in the /data/scenario directory. For example, if the data held for an item is longer than one line, the new line breaks must occur at exactly the same places in the data in both files. This is not true for a few of the files.

4.2.49 M-J-99164 Convoy Damage By Ground Units

Convoys used to be subject to damage when in a hex adjacent to an enemy unit and were eliminated if an enemy unit ever entered the hex the convoy was in. It appears that convoys are now only subject to damage from air to ground, artillery or SSM fire.

4.2.50 M-J-99180 ELINT Detects Targets Not in Game

On the controller send Assign.National.Elint.Assets with parameters: Force Side: ADF, Order Action: Start ELINT, Action: Both Reports Elint Interval: 1 hour. On the ADF GIAC perception ship targets (e.g., an emitter such as a radar) which belong to ships which have not been TPFDD into the game get detected and are shown as icons. The ship icon is not present. These detected targets are also shown in the ELINT summary report. If the ship is not TPFDD into the game an associated emitter should not be detected.

4.2.51 M-J-99223 Magic Move Must Completely Terminate Bridge Recovery

When a unit that is in the process of recovering a bridge is Magic Moved, the target inappropriately remains in the recovering unit's set of associated targets, even though the events associated with the recovery are cancelled. This condition prevents a clean break with the bridge target and introduces a false status for both the unit and the bridge.

4.2.52 M-J-99281 SVP Warning 22

SVP Warning 22 reports aircraft loads whose extra fuel exceeds the aircraft's wet carry capacity. I believe the check should be changed to see if the extra fuel (carried in pods/tanks) when added to the other weapons exceeds either the aircraft's dry carry capacity or total dry/wet carry capacity. Granted, there are other supply loads that might carry wet supplies, but in the case of extra fuel, I don't believe it should be considered wet weight.

4.2.53 M-J-99291 Crash When Formation with No Posture Reaches Destination Two

The model crashed when a formation reached a Destination Two hex and the formation no longer had a posture. Therefore it did not know what to do. A Destination Two hex indicates that the Formation should conduct its assigned Amphibious Operation, drop off its Sealifted supplies or clear

mines from a minefield. The posture of the formation is used to tell the formation which of these three tasks should be accomplished.

When the formation reached its Destination Two hex, the posture of the formation was zero; therefore, the formation did not know which of the three tasks should be accomplished.

4.2.54 M-J-99328 GIAC Shows HRU Mission As Moving After Movement Is Complete

The GIAC Message Box Unit Sitrep for an HRU continues to show a Mission of MOVING when movement is complete. Unit Posture changes to DEFEND. ARU Sitreps are displayed with both a Mission and Posture of DEFEND.

4.2.55 M-J-99330 IMT And GIAC Show Insert/Extract Mission Flying At Zero Feet

IMT and GIAC show Insert/Extract Mission flying at zero feet from Insert/Extract to next Transit Point. Also between some Transit points. Radar detection reports correct altitude.

4.2.56 M-J-99331 IMT Does Not Add Unit Names In An Open Foreign Unit Information Window

IMT - Intelligence - Foreign Units will display the current list of identified Foreign Units and will update information about them while the Foreign Unit Information window remains open. However, if a new Foreign Unit is identified, that unit does not get added to the list in the open window. A new Foreign Unit Information Window must be selected to obtain the current list of identified units.

4.2.57 M-J-99335 HRU Move Order Always ASAP

An HRU Move Order goes into effect ASAP instead of at the designated future Start Time whether New or Add-on. ARU Move Orders with a future Start Time are acknowledged when issued but complied with at the designated Start Time.

4.2.58 M-J-99336 Air Transport Cannot Combine Wet and Dry Supplies on Same Mission

When both wet and dry supply categories are included in the same Transport Instructions List for an Air Transport mission, they will not be transported at the same time. The first supply category shipment type will be loaded, but the second will not. If both are included in the same Supply List, the wet category is preferred. The aircraft go through the motions as if loading and delivering the denied category, including MISREP confirmation. No pickup or delivery is made, although an empty storage area may be created. There is no documentation to support this situation, and the user is not notified of the problem.

4.2.59 M-J-99341 PSYOP Results Multiplier

The PSYOP Results Multiplier was referred to as the PSYOP Effects Multiplier four times in the Data Requirements Manual (DRM) and three times in the Analyst's Guide. Although listed in the DRM, the PSYOP Results Multiplier could not be accessed in the DDS. It appeared to default to 1.0 in the game for all units. Controller - Set Individual Unit Parameters permitted entries from 0.00 to 1.00, but all entries below 0.50 were converted to 0.50. The DRM showed a UT.PSYOP.RESULTS.MULTIPLIER range from 0.001 to 999999.99.

4.2.60 M-J-2000036 GIAC Runways

In the GIAC Release for 2.2 and previous, the runway current length and runway cuts do not display correctly when the user points and clicks. You have to check the IMT to get the correct values.

4.2.61 M-J-2000067 Detachment Should Inherit Shared Authority

When a detachment was formed as the result of an airlift mission that did not completely move the full unit, the player lost authority over the detachment. A new shared authority order had to be issued for the detachment.

APPENDIX A. ABBREVIATIONS AND ACRONYMS

AAA	AntiAircraft Artillery
AADC	Area Air Defense Commander
AAL	Air-to-Air Lethality
A/C	Aircraft
ACP	Air Control Prototype
ADA	Air Defense Artillery
AEW	Airborne Early Warning
AFB	Air Force Base
AG	Air Ground (Air-to-Ground)
AI	Air Interdiction
AIM	Air Intercept Missile
AIREF	Air Refueling
AKL	Area Kill Lethality
AMMO	Ammunition
AO	Area of Operations
AOC	Air Operations Center
APC	Armored Personnel Carrier
ARECCE	Armed Reconnaissance
ARTE	Air Route
ARTY	Artillery
ASCII	American Standard Code for Information Interchange
ASW	Anti-Submarine Warfare
ATC	Aircraft Target Category
ATGM	Antitank Guided Missile
ATK	Attack
ATO	Air Tasking Order
ATOG	Air Tasking Order Generator

ATORET	Air Tasking Order Retrieve Program
ATOT	Air Tasking Order Translator
Attribute	A data item belonging to an entity, such as name, size, or number of subentities
AWACS	Airborne Warning and Control System
AZ	Altitude Zone
BADGE	Bilateral Air Defense Ground Environment (Used by JSDF)
BAI	Battlefield Air Interdiction
BDA	Battle Damage Assessment
BDE	Brigade
BN	Battalion
C3	Command, Control, and Communications
C3I	Command, Control, Communications, and Intelligence
C4I	Command, Control, Communications, Computers, & Intelligence
CA	Civil Affairs
CAP	Combat Air Patrol
CAS	Close Air Support
CAT	Category
CCF	Central Control Facility
CCP	Command Control Prototype
CEP	Combat Events Program The combat model in JTLS that simulates execution of ground, naval, air, logistics, and intelligence activities.
Checkpoint	A temporary halt in the game initiated either manually by the Controller or automatically by the CEP.
CP	Combat Power
CS	Combat System
CSP	Combat System Prototype
CTAPS	Contingency Tactical Air Planning System
CTG	Commander Task Group
CTRL	Control, a keystroke as in “CTRL-C”
DCA	Defense Counter Air

DDS	Database Development System
DISA	Defense Information Systems Agency
DIV	Division
DMA	Defense Mapping Agency
DoD	Department of Defense
DOS	Days of Supply
DPICM	Dual Purpose Improved Conventional Munitions
DS	Direct Support
DSA	Directed Search Area
DTG	Date Time Group
DZ	Depth Zone
EC	Electronic Combat
ECM	Electronic Counter Measures
ECP	Engineering Change Proposal
ELINT	Electronic Intelligence
ETA	Estimated Time of Arrival
Executive Program	Program used to access most other JTLS programs
FARP	Forward Arming and Refueling Point
FLOT	Front Line Own Troops
FLP	Fire Lethality Prototype
FOL	Forward Operating Location
FWL	Initials of Frederick W. Lanchester, generally credited with origination of the differential equation model of attrition, hence Lanchestrian attrition.
GAL	Gallon
GCCS	Global Command and Control System
GDS	GENIS Data Server
GENIS	Data Holder/Server Process
GIAC	Graphical Input Aggregate Control. The active interface between the player and the CEP.
GRTE	Ground Route

GS	General Support
GSR	General Support Reinforcing
GUI	Graphical User Interface
HARM	High speed Anti-Radiation Missile
HE	High Explosive
Hectare	10,000 square meters
HELO	Helicopter
Hex	Hexagon
HMMWV	High Mobility Multipurpose Wheeled Vehicle
HQ	Headquarters
HRU	High Resolution Unit
HTML	HyperText Markup Language
HUP	High Resolution Unit Prototype
ICM	Improved Conventional Munitions
ICP	Interface Configuration Program. An interactive program that allows the user to define the specifications for each game process that can be started for a particular scenario
ICPLogin	Interface Login Program
ID	Identifier
IFF	Identification Friend or Foe
IIP	Intel/Information Prototype
IMT	Information Management Tool The JTLS program that provides real time tabular same information.
INFO	Information
Initialization	Phase of game during which data sets are read and the game is configured for Players.
INTEL	Intelligence
JMCIS	Joint Maritime Combat Information System
JMEM	Joint Munitions Effectiveness Manuals
JPL	Jet Propulsion Laboratory
JSDF	Japanese Self Defense Force
JTLS	Joint Theater Level Simulation

JWC	Joint Warfighting Center
KIA	Killed in Action (aka “Remains”)
KM	Kilometer
KNOTS	Nautical miles per hour
LA	Lethal Area
LAN	Local Area Network
LAT	Latitude
LB	Login Build, a JTLS order type.
LDT	Lanchester Coefficient Development Tool
LOG	Logistics
LOGIN	Logistics Input, arrival in theatre or supplies
LOGREP	Logistics Report
LONG	Longitude
LOTS	Logistics Over The Shore
LR	Long Range
M&S	Modeling and Simulation
MAPP	Modern Aids to Planning Program
MB	Megabyte
MCP	Mobility Counter Mobility Prototype
MCR	Model Change Request. A form submitted by users and developers to report problems or desired enhancements to the JTLS model.
MG	Machine Gun
MHE	Material Handling Equipment
MIP	Model Interface Program, a Generic term for GIAC, MPP, IMT, etc....
MOGAS	Motor gasoline
MOPP	Mission-Oriented Protective Posture
MOSAIC	NCSA user interface software
MOTIF	An X Window System graphical interface
MP	Maneuver Prototype
MPP	Message Processor Program. This program displays exercise messages from the CEP

	to the Player.
MSC	Major Subordinate Command
MSG	Message
MTF	Message Text Formats
NCSA	National Center for Supercomputing Applications (University of Illinois)
NFS	Network File Server
NM	Nautical Mile
NTSC	Naval Telecommunications System Center
OAG	Orbiting Air-to-Ground, air mission
OAS	Offensive Air Support
OCA	Offensive Counter-Air
OJCS	Organization of the Joint Chiefs of Staff
ONC	Operational Navigation Chart
OPLAN	Operation Plan
OPM	Online Players Manual
OPP	Order Preprocessing Program
ORACLE	A relational database management system
OTH	Over the Horizon
OTH Gold	OTH message Specification
OTH-T	Over the Horizon - Targeting
pD	Probability of Detection
pE	Probability of Engage
pH	Probability of Hit
pK	Probability of Kill
PKL	Point Kill Lethality
POL	Petroleum, Oil, and Lubricants
POSIX	An international standard based on System V and BSD.
PPS	Postprocessor Program (a JTLS component)
PSYOPS	Psychological Operations

QRA	Quick Reaction Alert
QRA.DCA	Quick Reaction Alert, Defensive Counter Air
QRA.OAS	Quick Reaction Alert, Offensive Air Support
RAM	Random Access Memory
RDMS	Relational database management system
RECCE	Reconnaissance, normally refers to Air Missions
RECON	Reconnaissance, normally refers to Ground Missions
REGT	Regiment
RNS	Random Number Seed
ROE	Rules of Engagement
RPT	Report
RSP	Reformat Spreadsheet Program
SAL	Surface-to-Air Lethality
SAM	Surface-to-Air Missile
SAM/AAA	Surface-to-Air Missile/Anti-Air Artillery
SC	Supply Category
SCP	Simulation Control Plan
SDB	Standard Database scenario
SEAD	Suppression Enemy Air Defense
SIMSCRIPT	Computer programming language (product of CACI, Inc.)A multiple-pass compiler
SIP	Scenario Initialization Program
SITREP	Situation Report
SLP	Sustainment Log Prototype
SOF	Special Operations Forces
Solaris	A distributed computing environment from SunSoft.
SP	Survivability Prototype
SQL	Structured Query Language
SR	Short Range
SRP	Start/Restart Program (a JTLS component)

SRTE	Sea Route
SSM	Surface-to-Surface Missile
STR	Software Trouble Report
SUN	Sun Microsystems, Inc.
SUP	Ship Unit Prototype
SVP	Scenario Verification Program. Verifies consistency of data entered for a given scenario.
TADIL	Tactical Digital Interface Link
TCP/IP	Transmission Control Protocol/Internet Protocol. A set of computer networking standards that specify the protocol for two or more computers to use in communicating with each other. TCP/IP was developed by the Department of Defense to support its Defense Data Network.
TEMPEST	Emanation testing
TG	Prefix for Target Attributes
TGT	Target
TMU	Terrain Modification Utility. A utility program used to modify JTLS hex-based terrain files.
TOE	Table of Organization and Equipment
TOT	Time on Target
TOW	Tube launched Optically tracked Wire guided missile
TPFDD	Time-Phased Force and Deployment Data
TPS	Terrain Preparation System
TTG	Target Type Group
TTL	Target Types List
TUP	Tactical Unit Prototype
TW	Targetable Weapon
UBL	Unit Basic Load
UIM/X	GUI Builder Tool
UNIX	A computer operating language.
UNK	Unknown
UOM	Unit of Measure

USA	United States Army
USAF	United States Air Force
USCG	United States Coast Guard
USMC	United States Marine Corps.
USMTF	U.S. Message Text Format
USN	United States Navy
UT	Prefix for Unit Attributes
UTM	Universal Transverse Mercator
VI	Visual Editor
VTOL	Vertical Takeoff and Landing aircraft
WAN	Wide Area Network
WDRAW	Withdraw
WIA	Wounded in Action
WPC	Warrior Preparation Center
WPN	Weapon
WT	Weight
WW	Wild Weasel

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